

FIG. 1A  
PRIOR ART

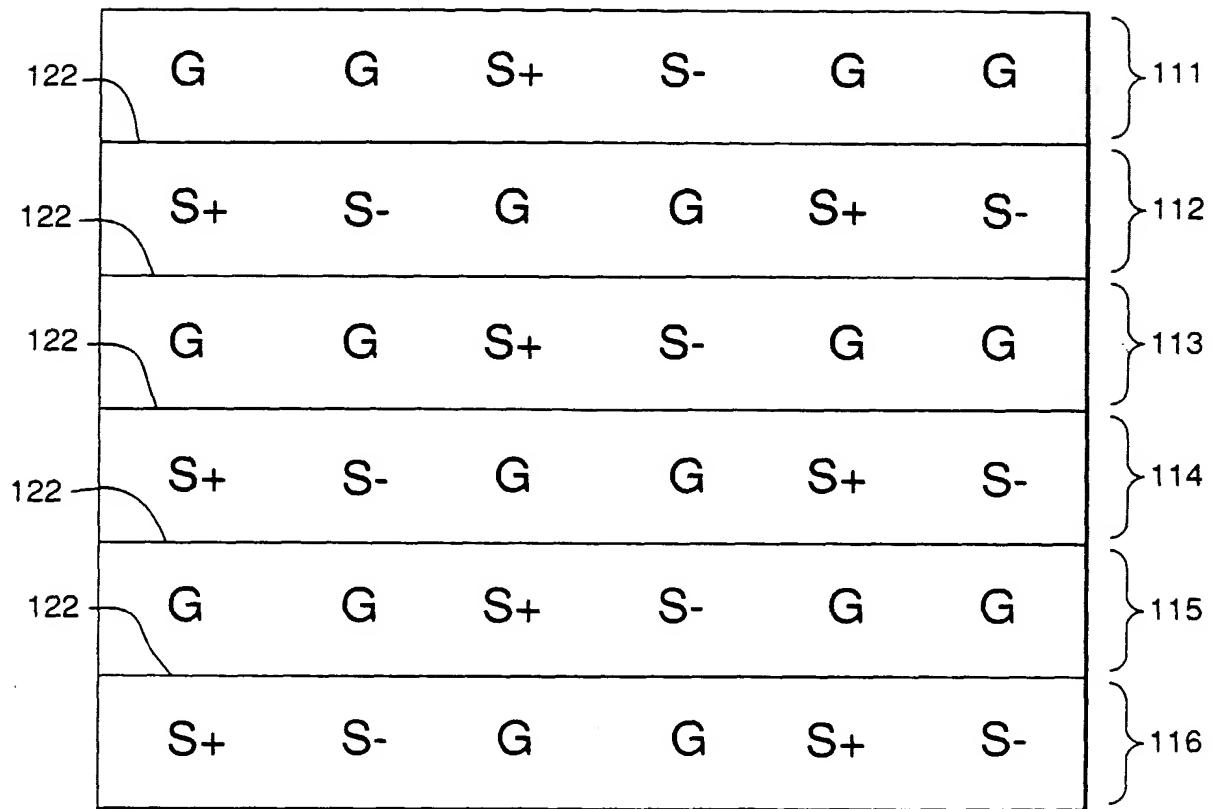


FIG. 1B  
PRIOR ART

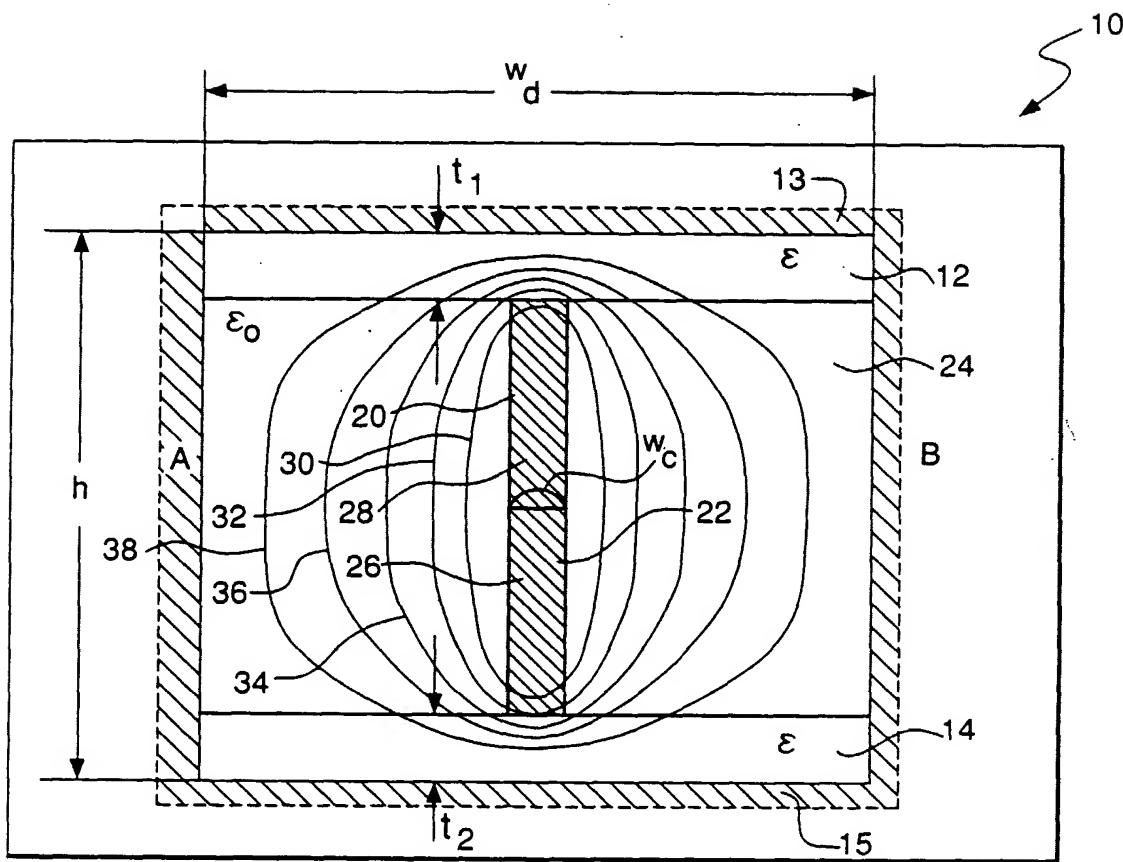


FIG. 2A

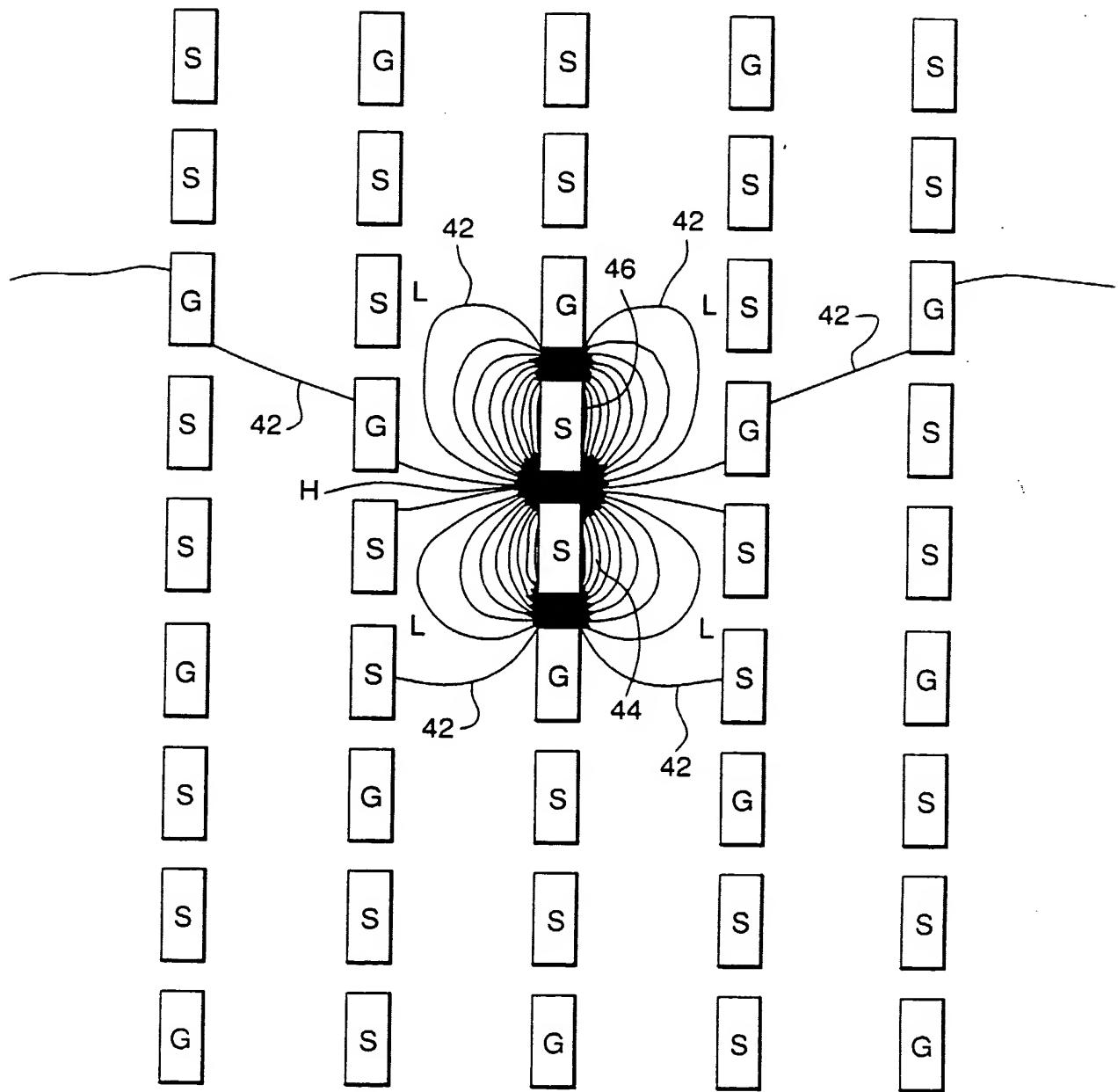


FIG. 2B

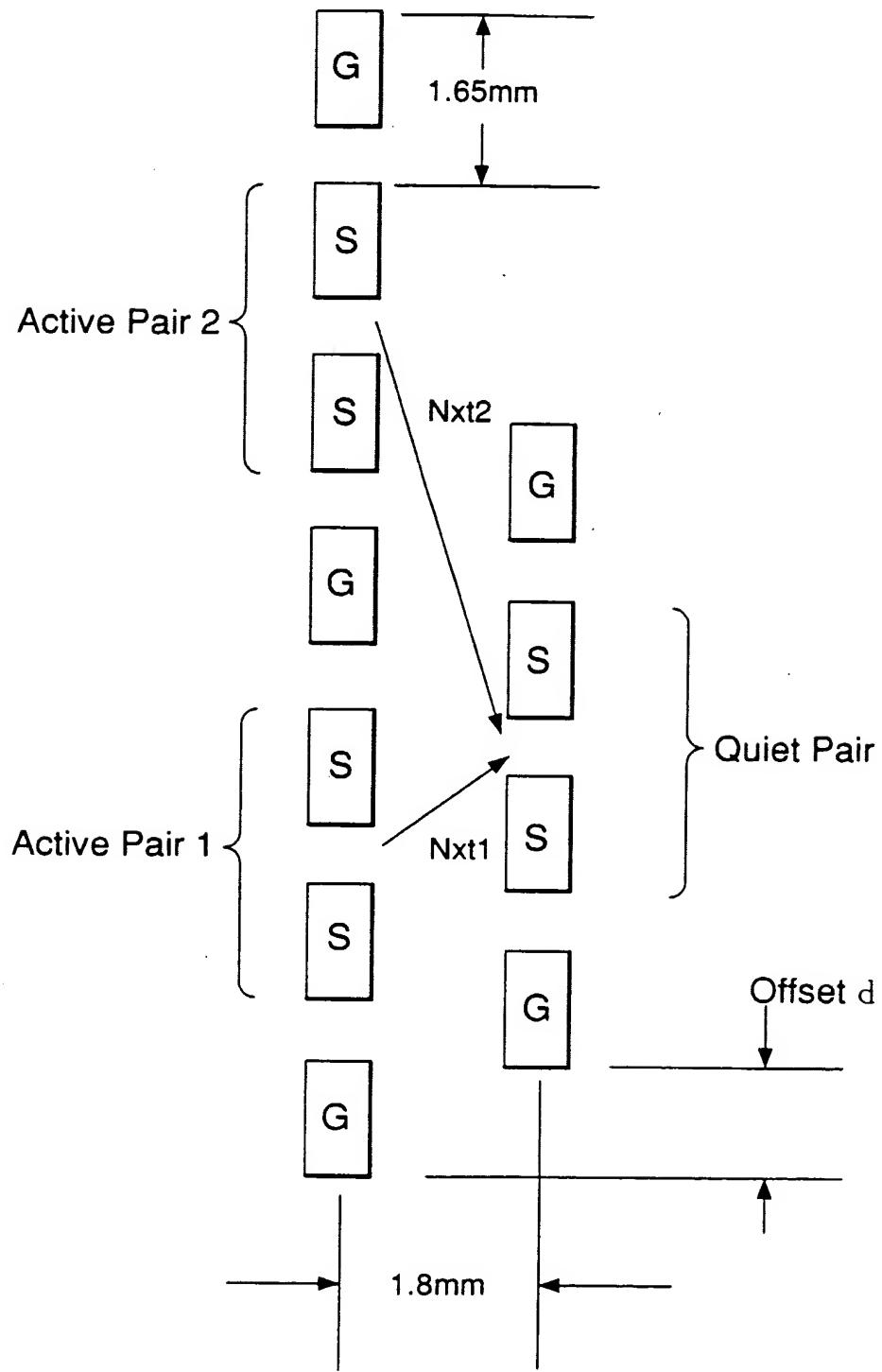
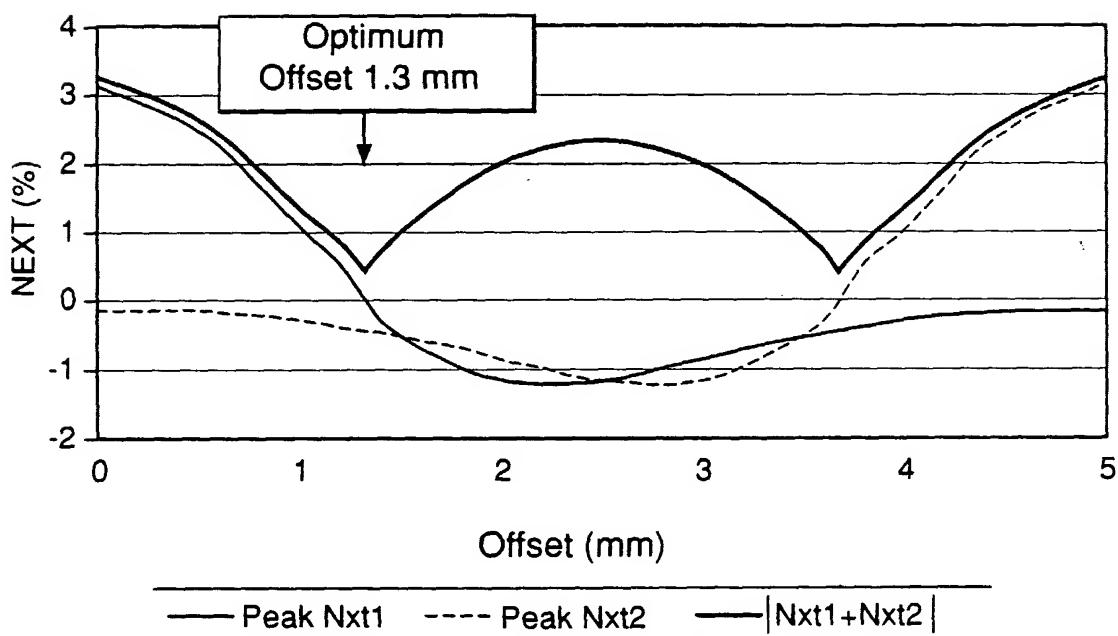


FIG. 3A

**NEXT vs. Offset**  
1.8 mm Col Spacing, 1.65 mm Row Spacing



**FIG. 3B**

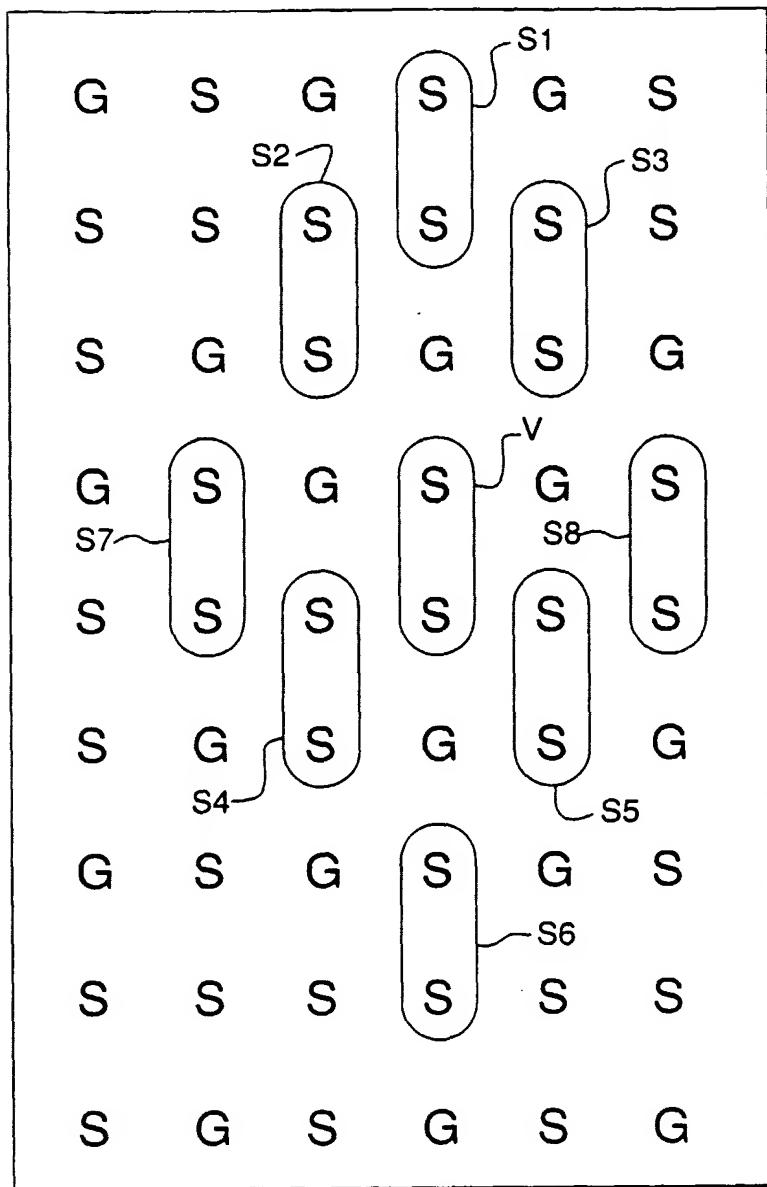


FIG. 3C

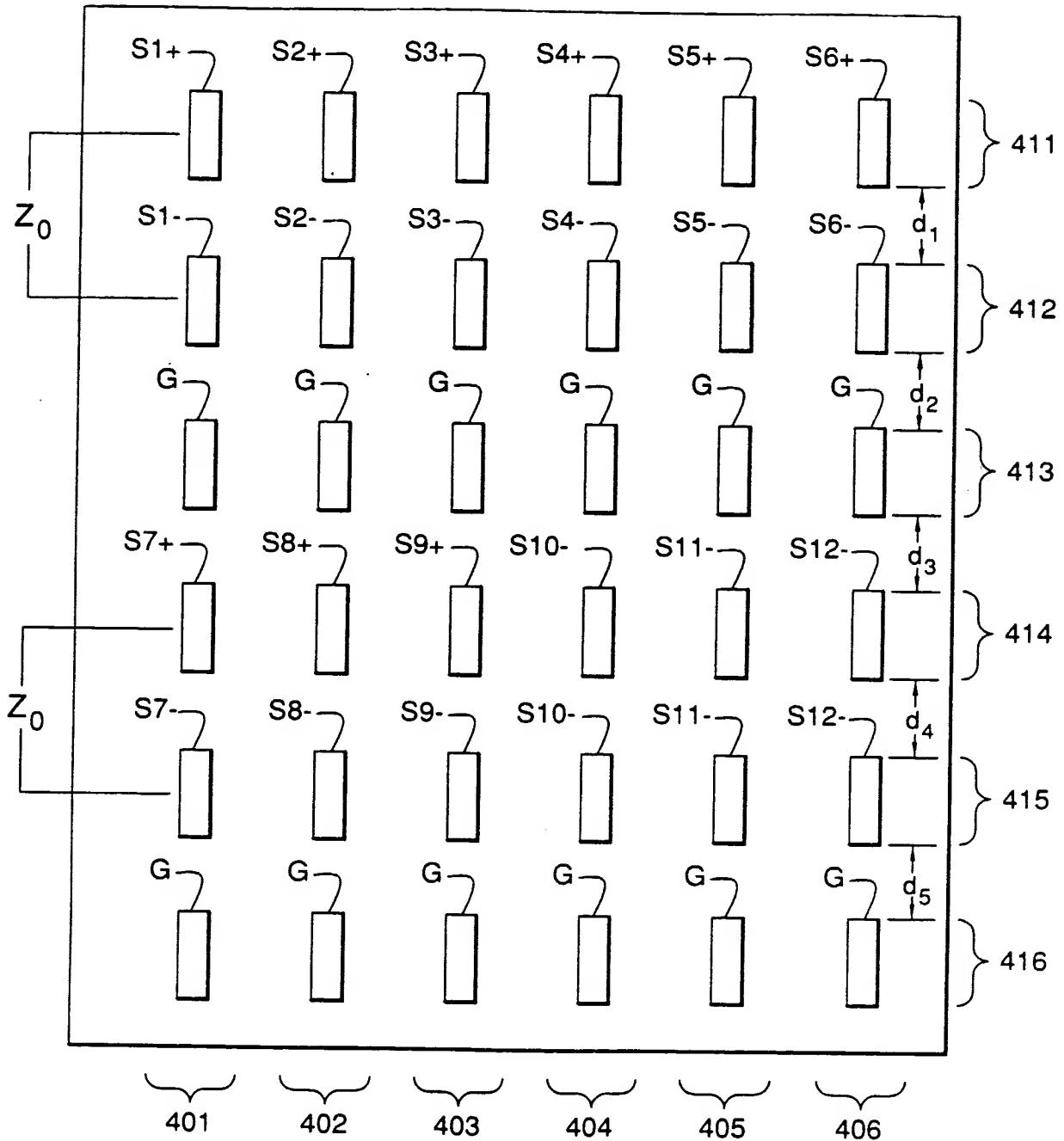
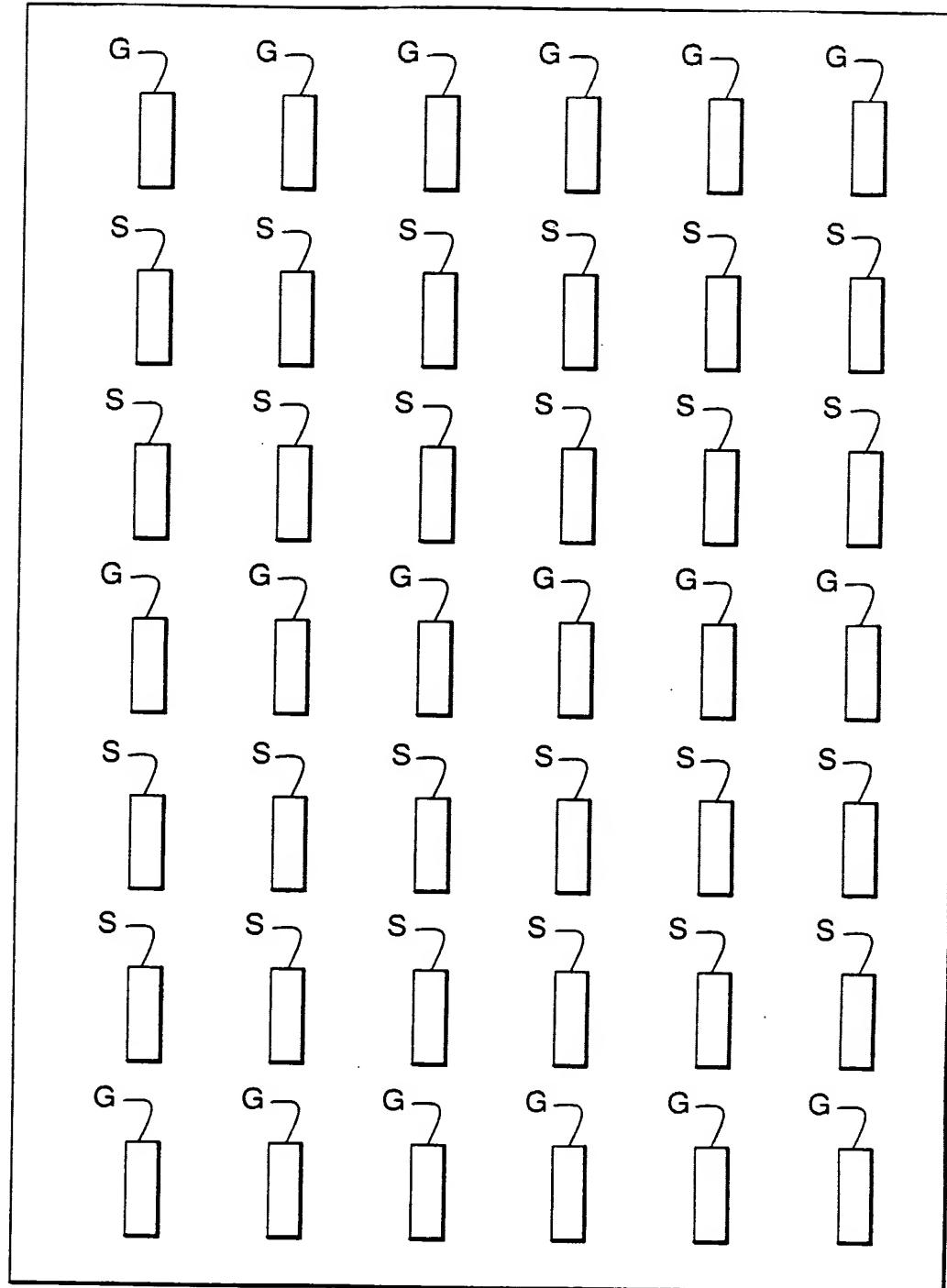


FIG. 4A

**FIG. 4B**

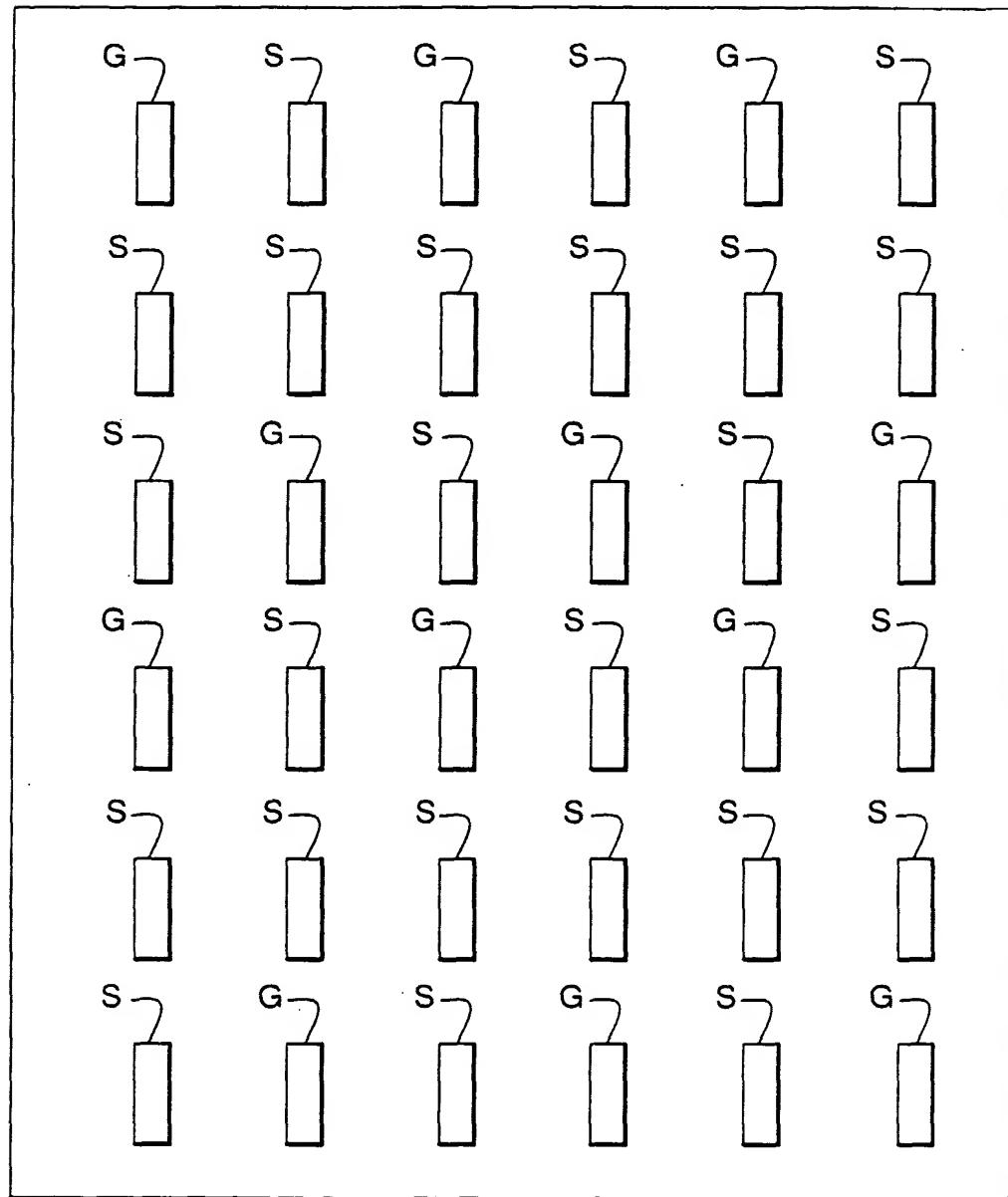


FIG. 4C

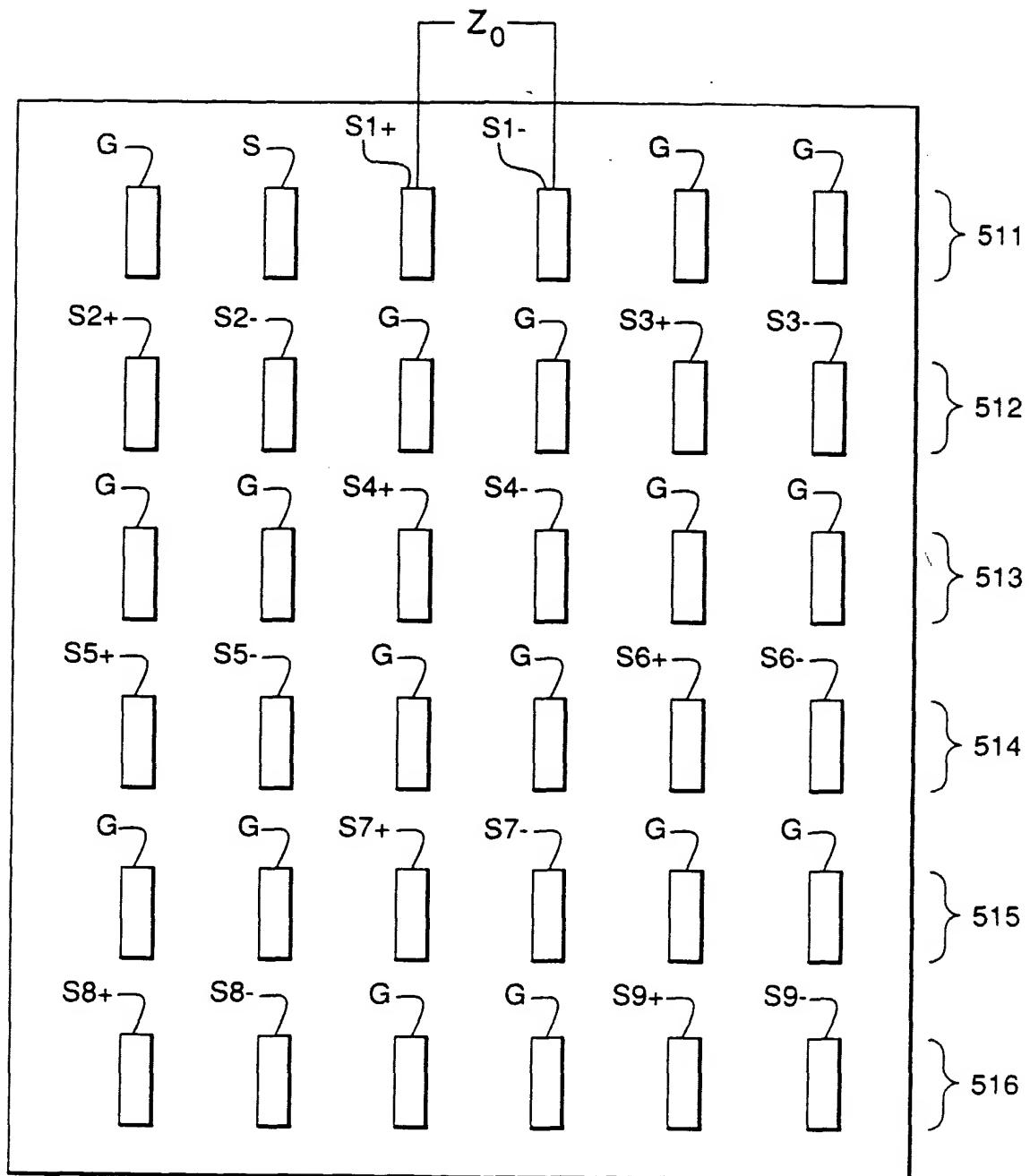


FIG. 5

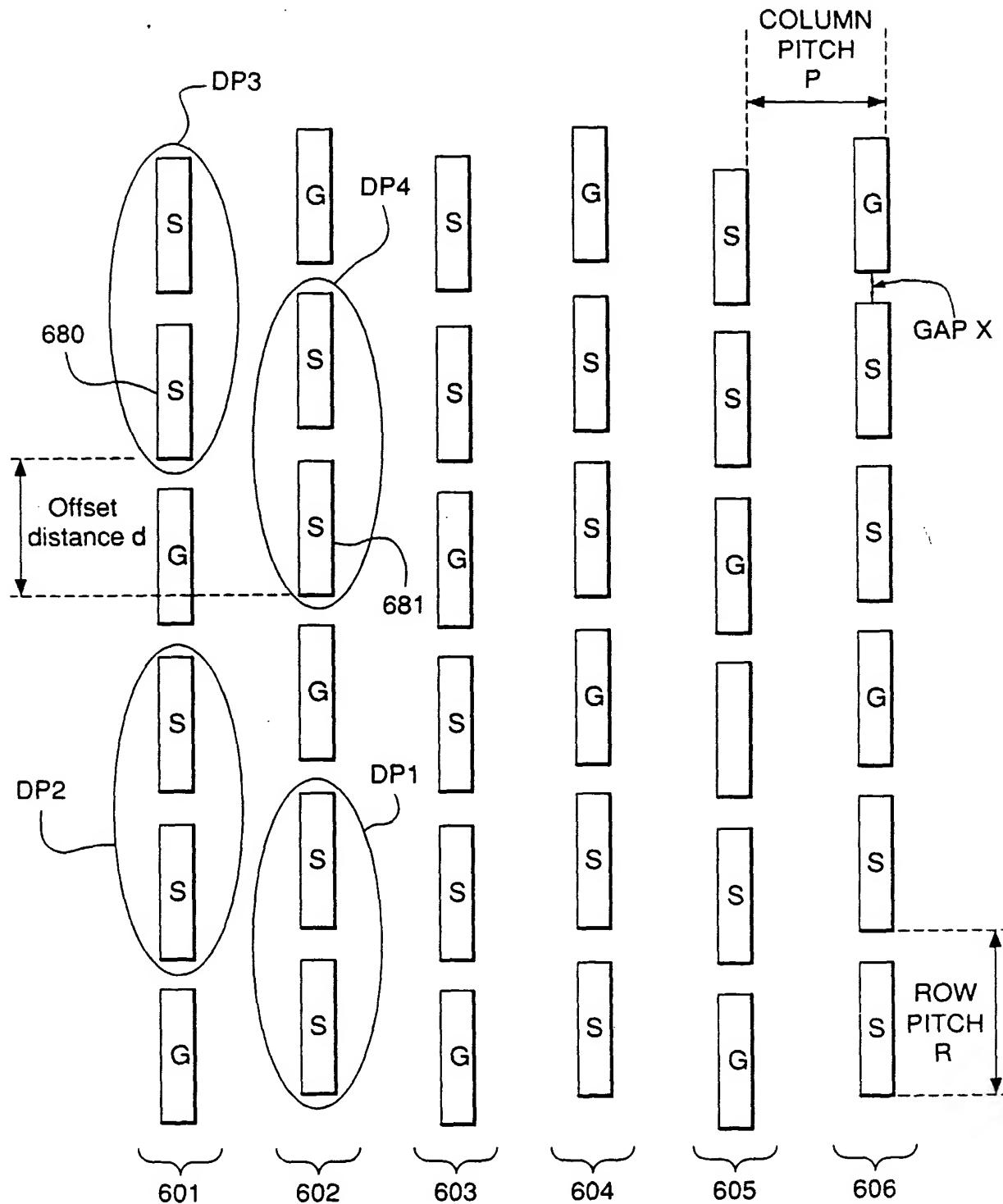


FIG. 6

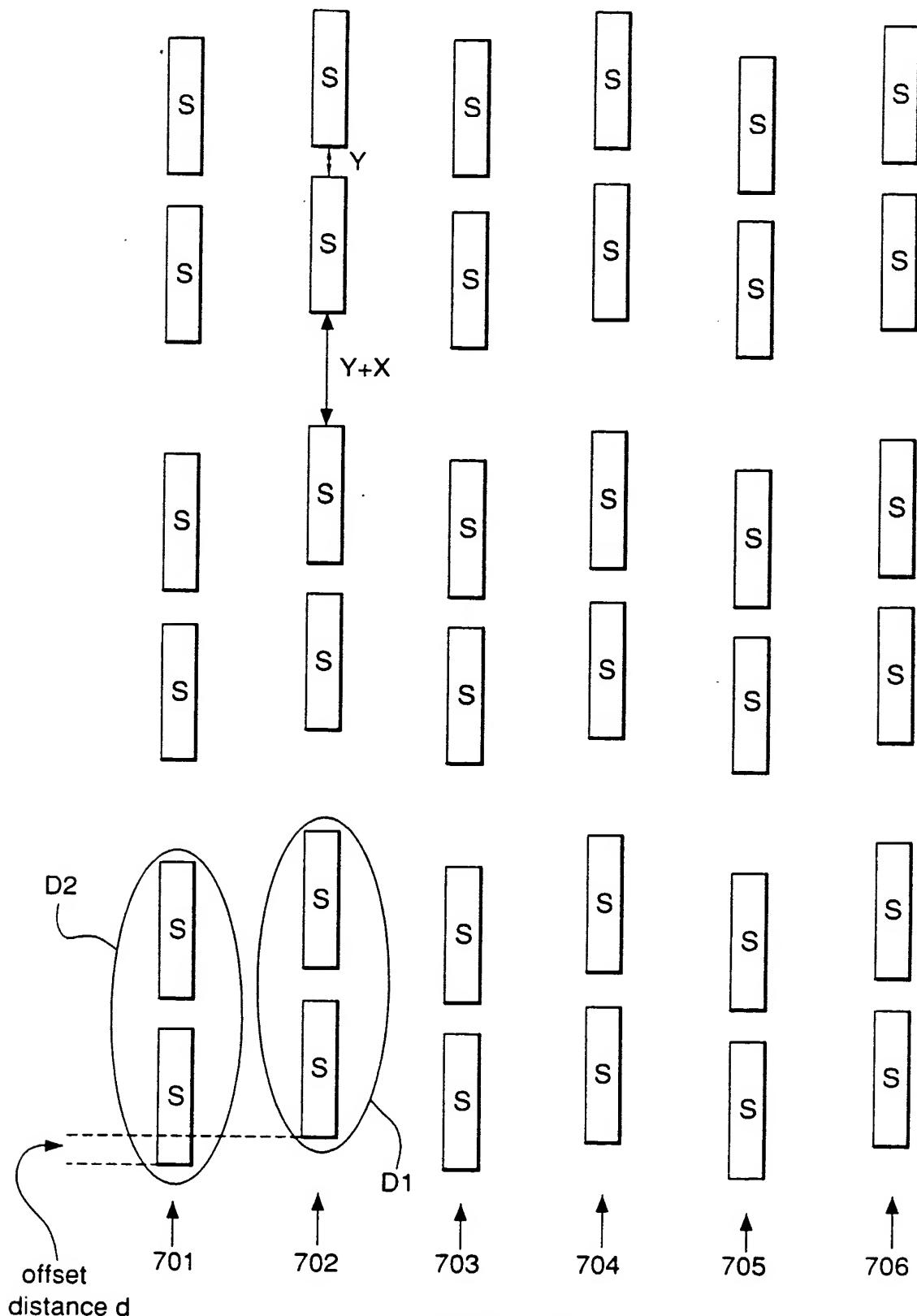


FIG. 7

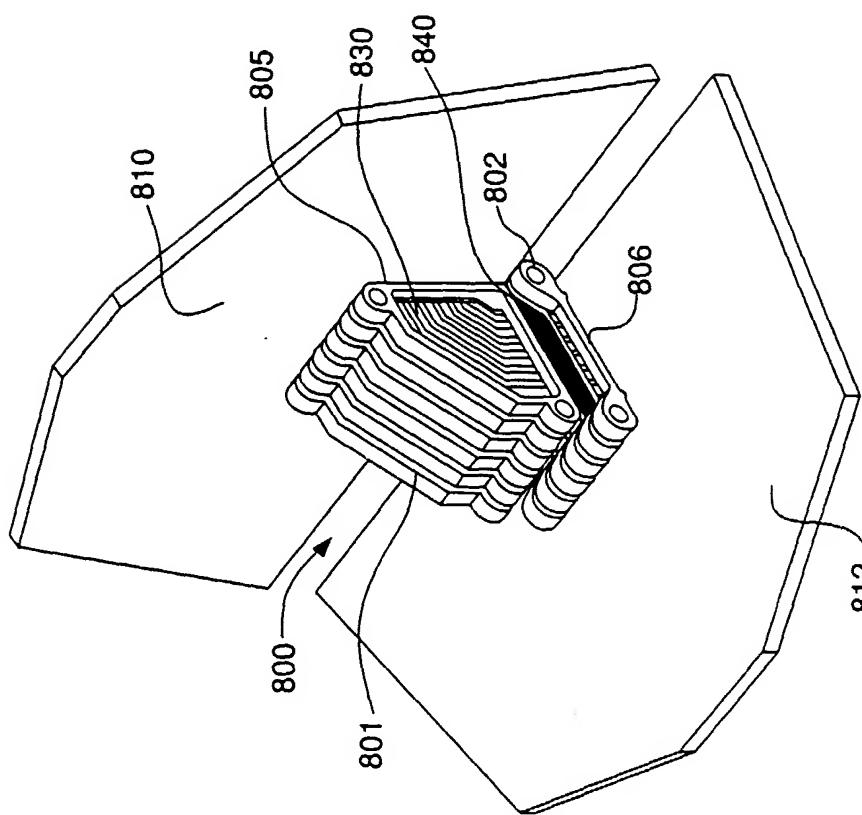


FIG. 8

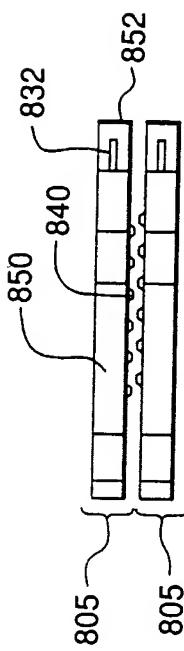


FIG. 11

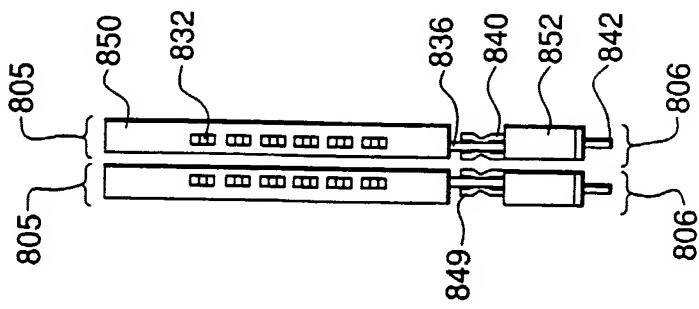


FIG. 10

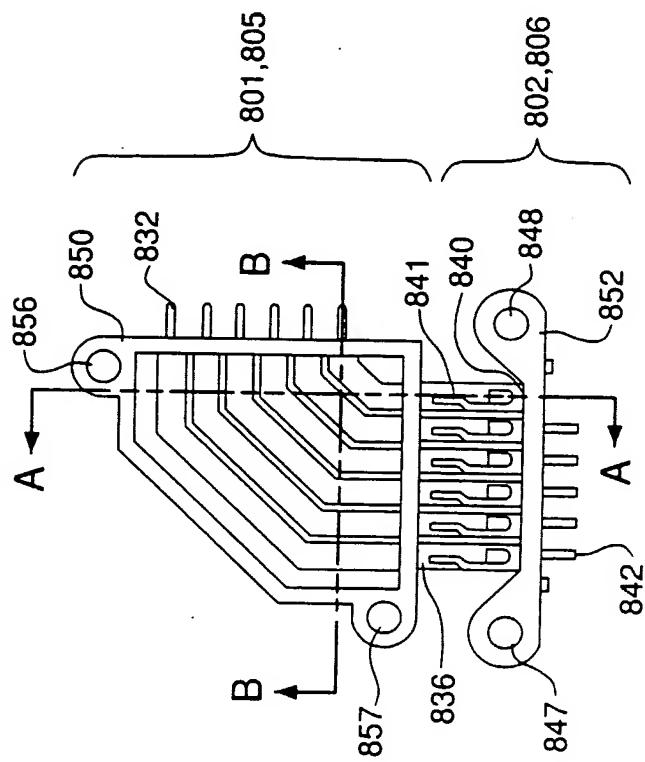


FIG. 9

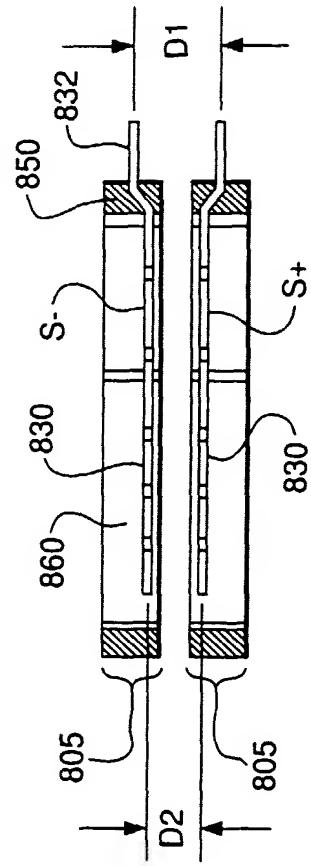


FIG. 12

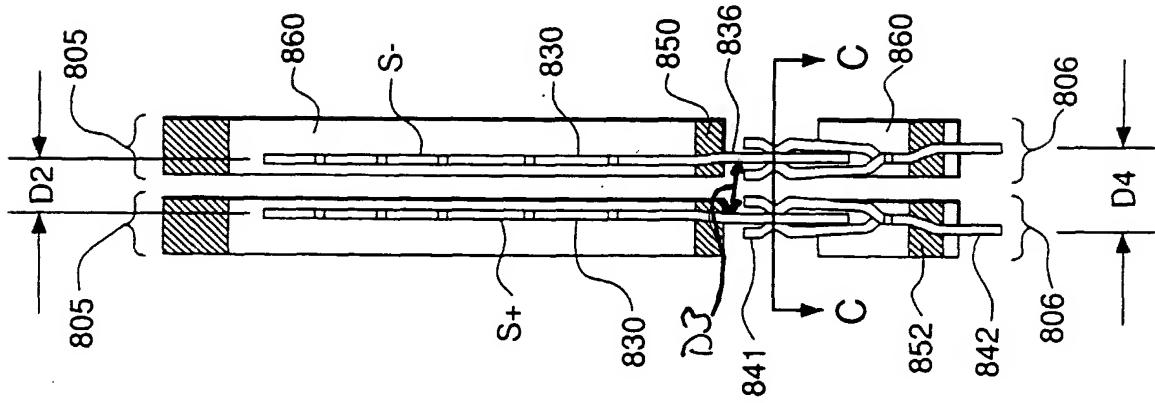


FIG. 13 A

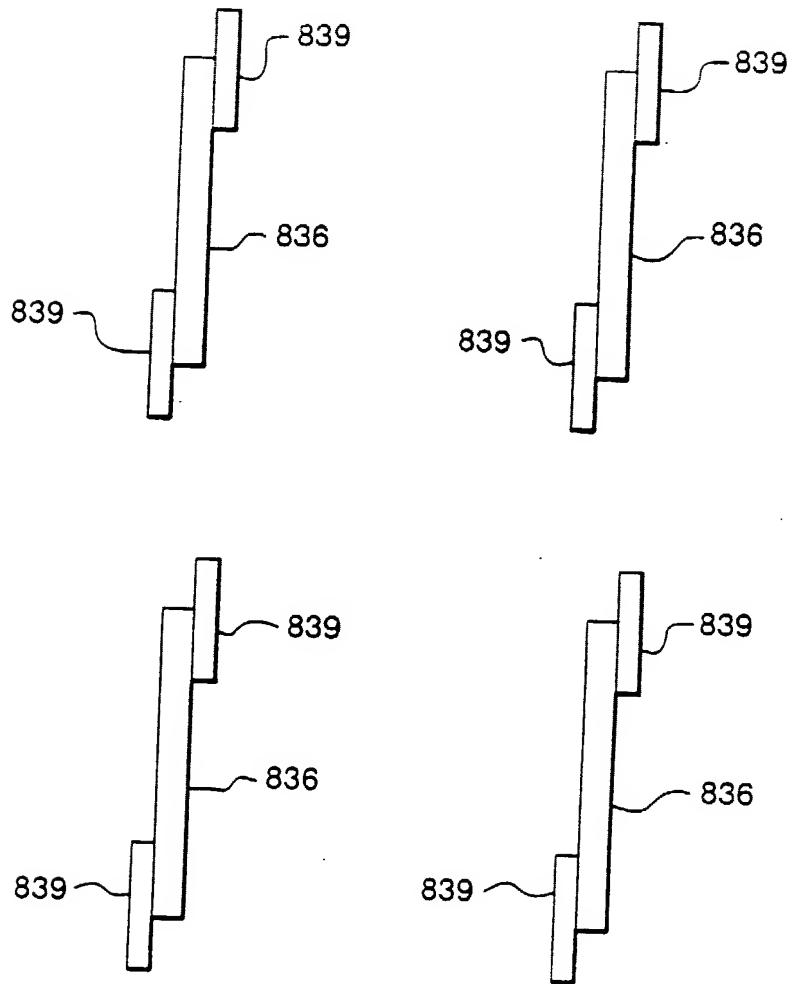


FIG. 13 B

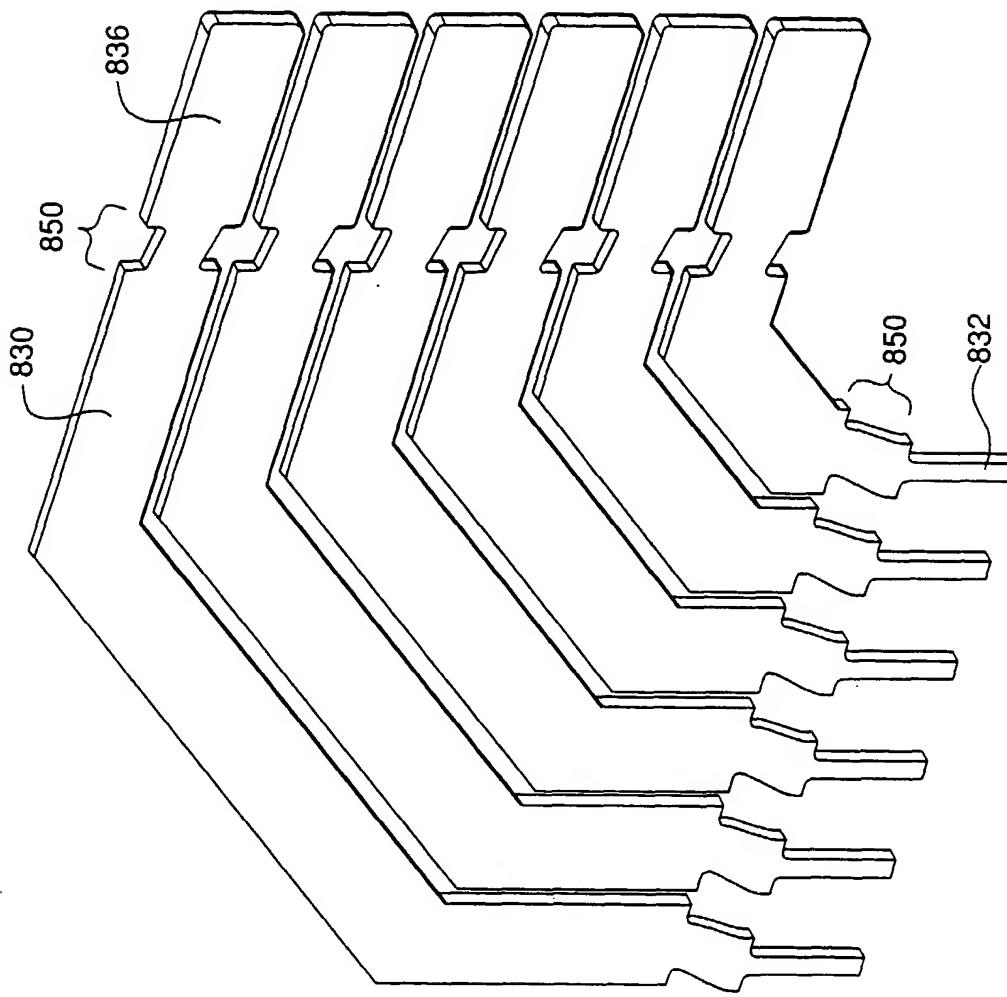


FIG. 14

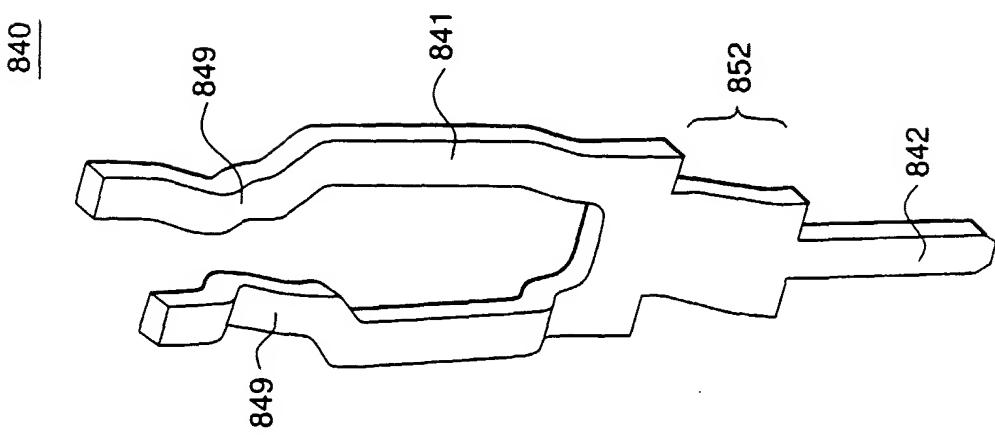


FIG. 15

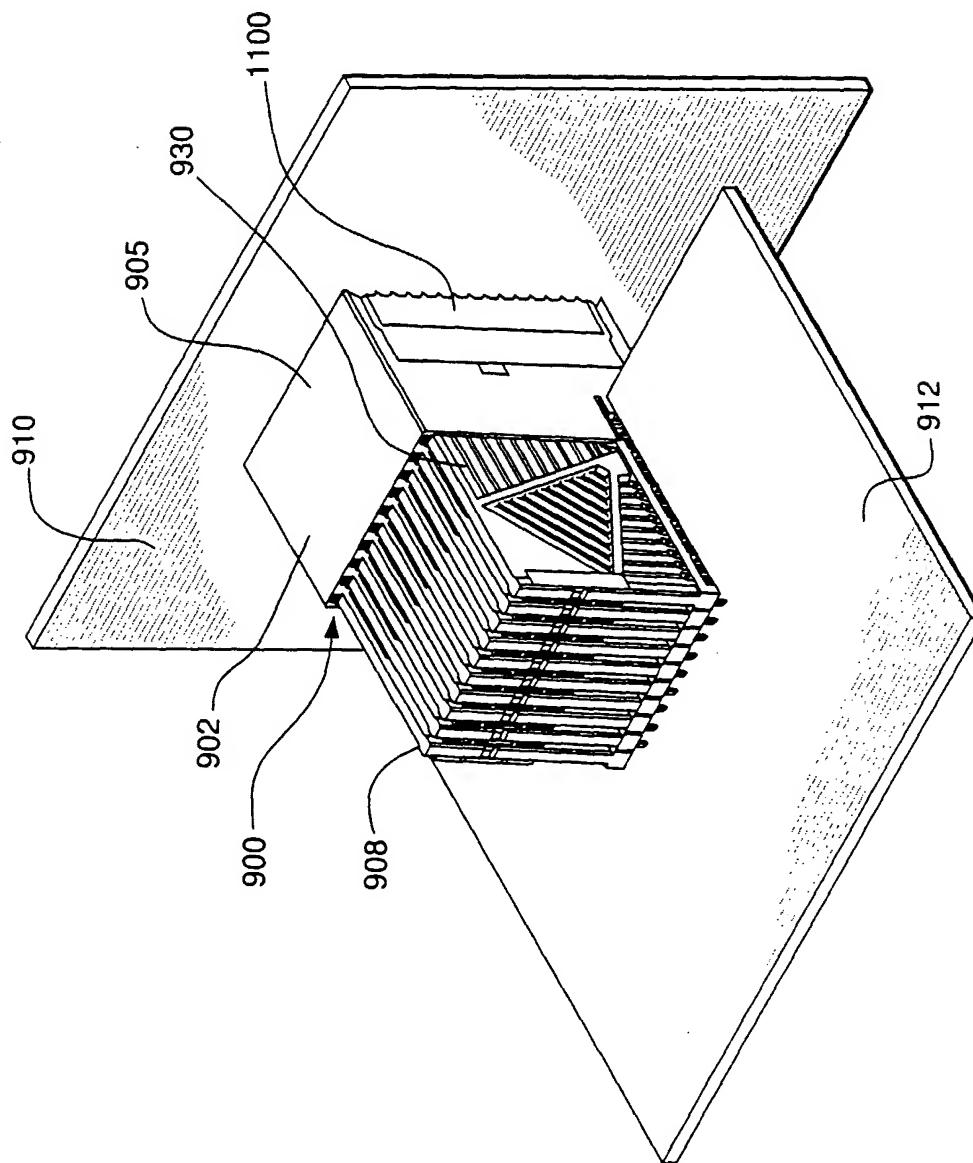


FIG. 16A

Docket No.: FCI-2714  
App No.: Not yet assigned  
Filed: 08/05/03  
Title: ELECTRICAL CONNECTORS HAVING CONTACTS THAT MAY BE  
SELECTIVELY DESIGNATED AS EITHER SIGNAL OR GROUND CONTACTS  
Inventors: Minich, et al.  
Attorney: Joseph R. Condo  
Phone: (215) 568-3100  
Sheet 21 of 68

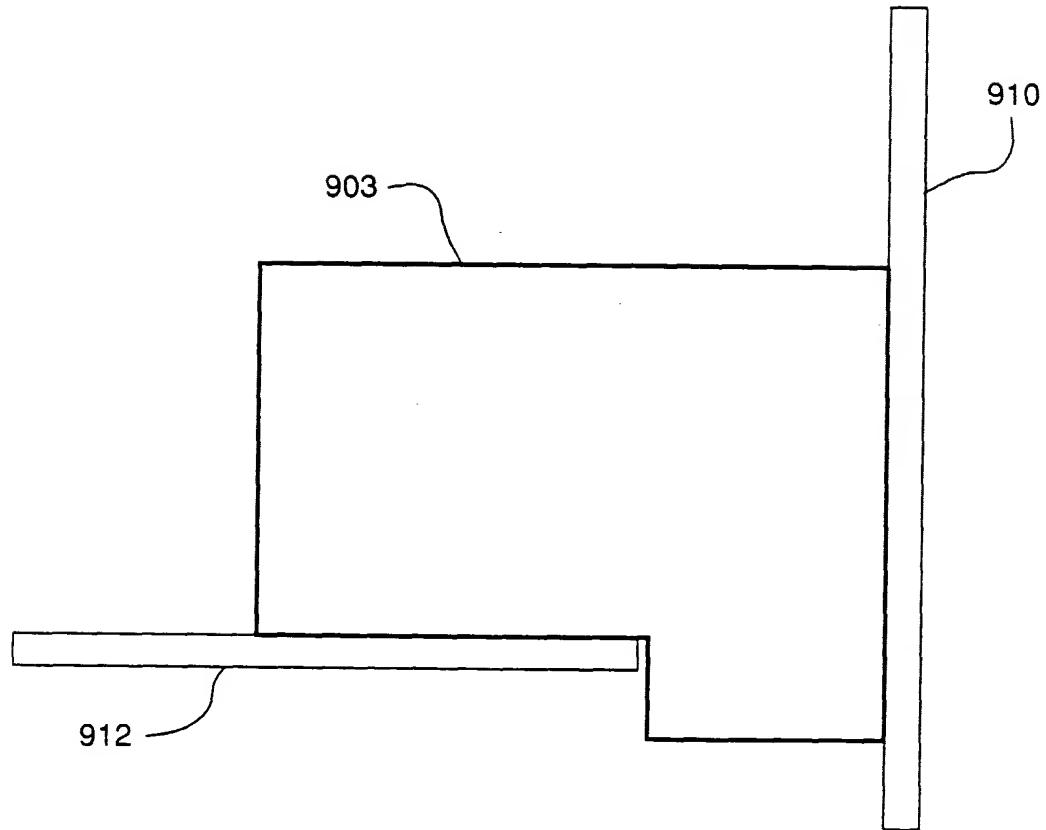


FIG. 16B

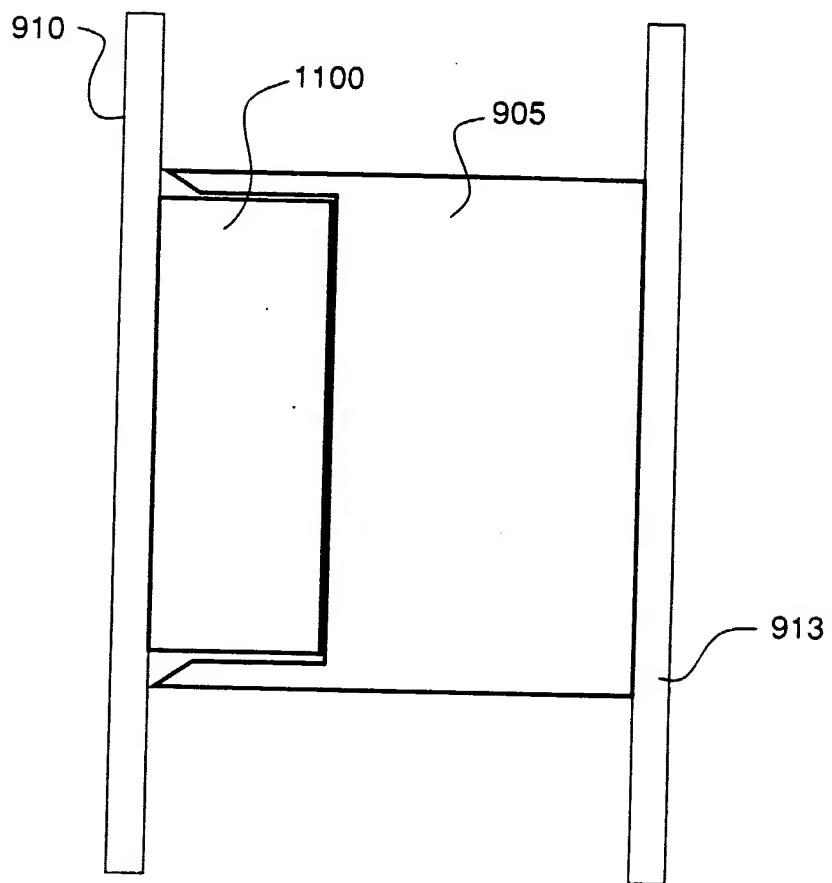


FIG. 16C

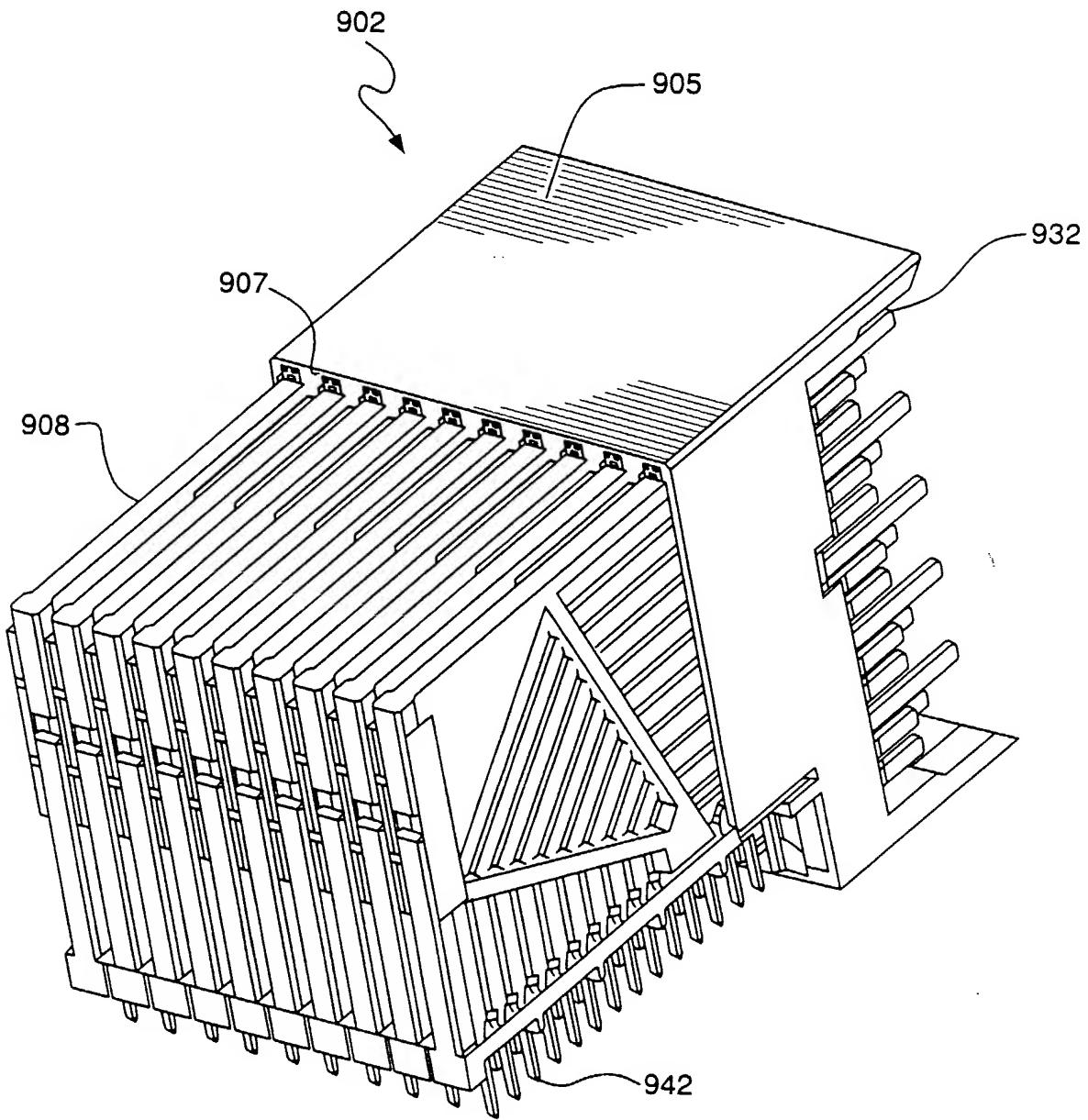


FIG. 17

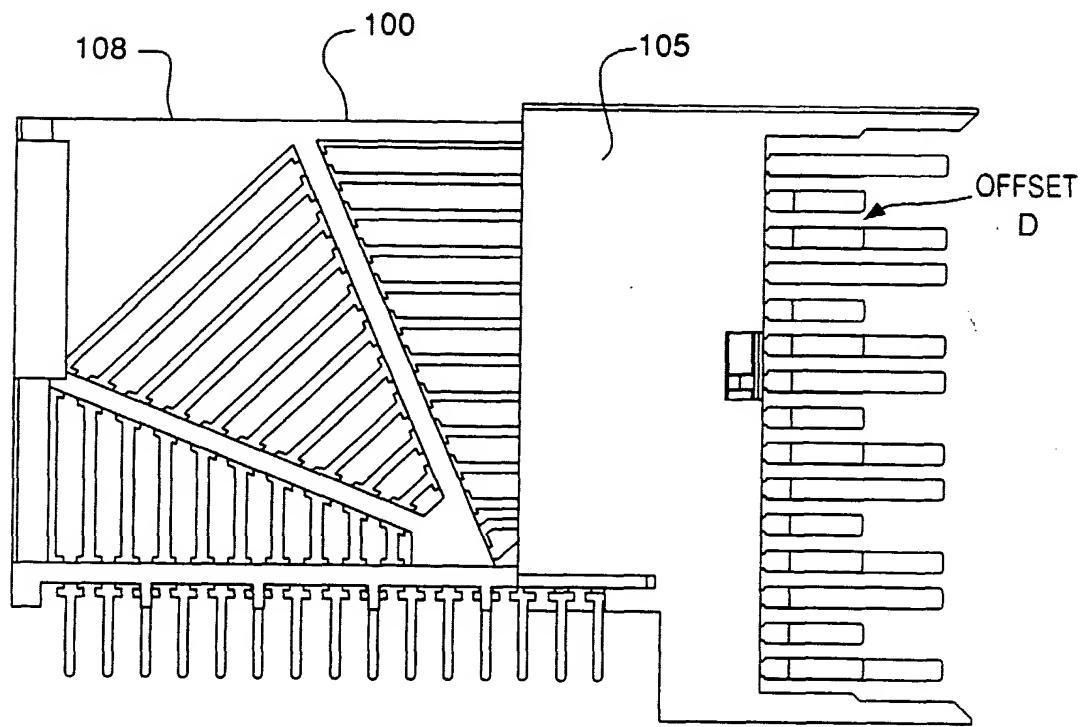


FIG. 18

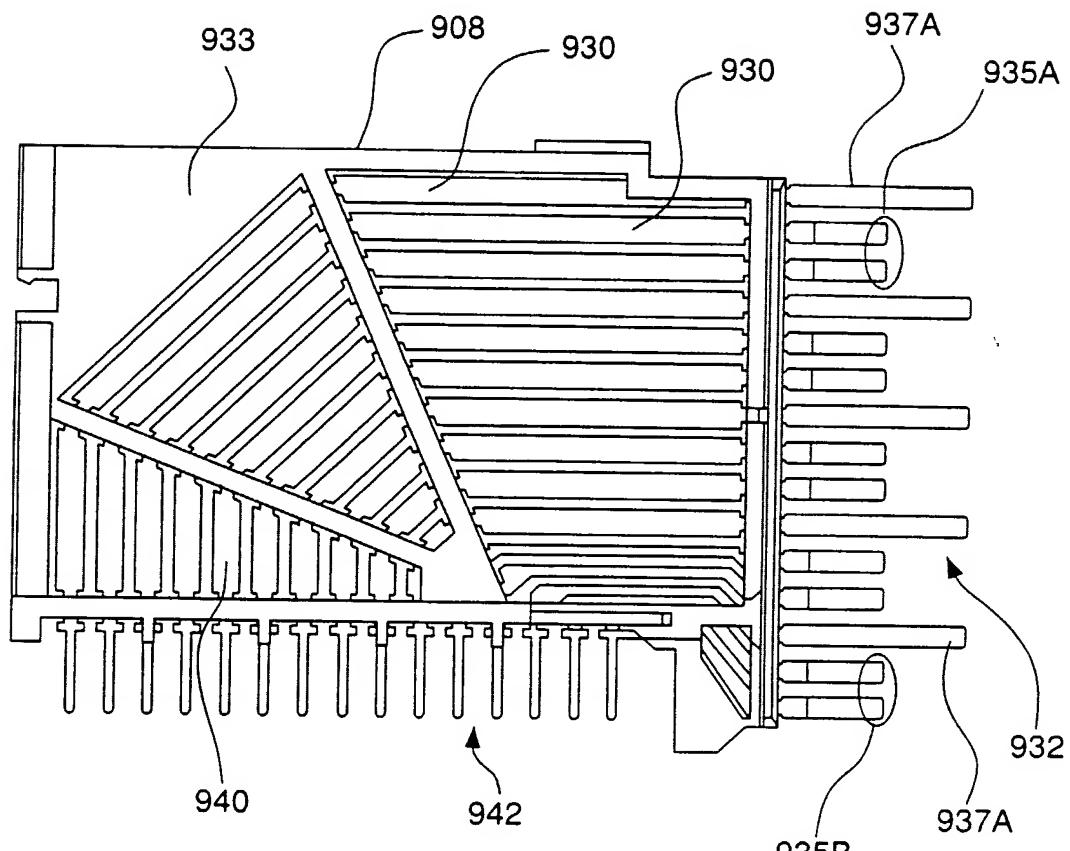


FIG. 19 A

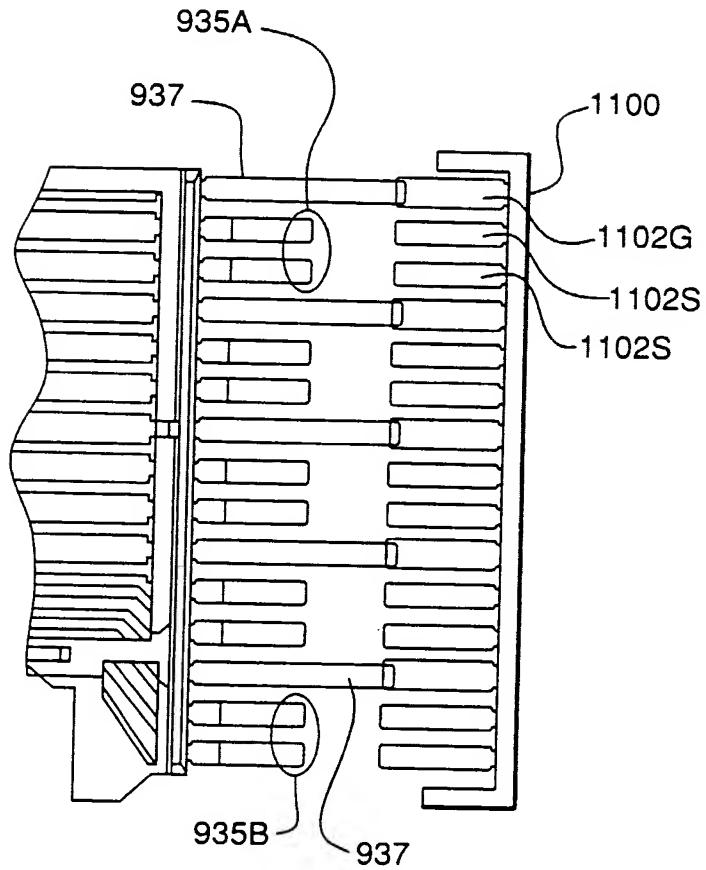


FIG. 19B

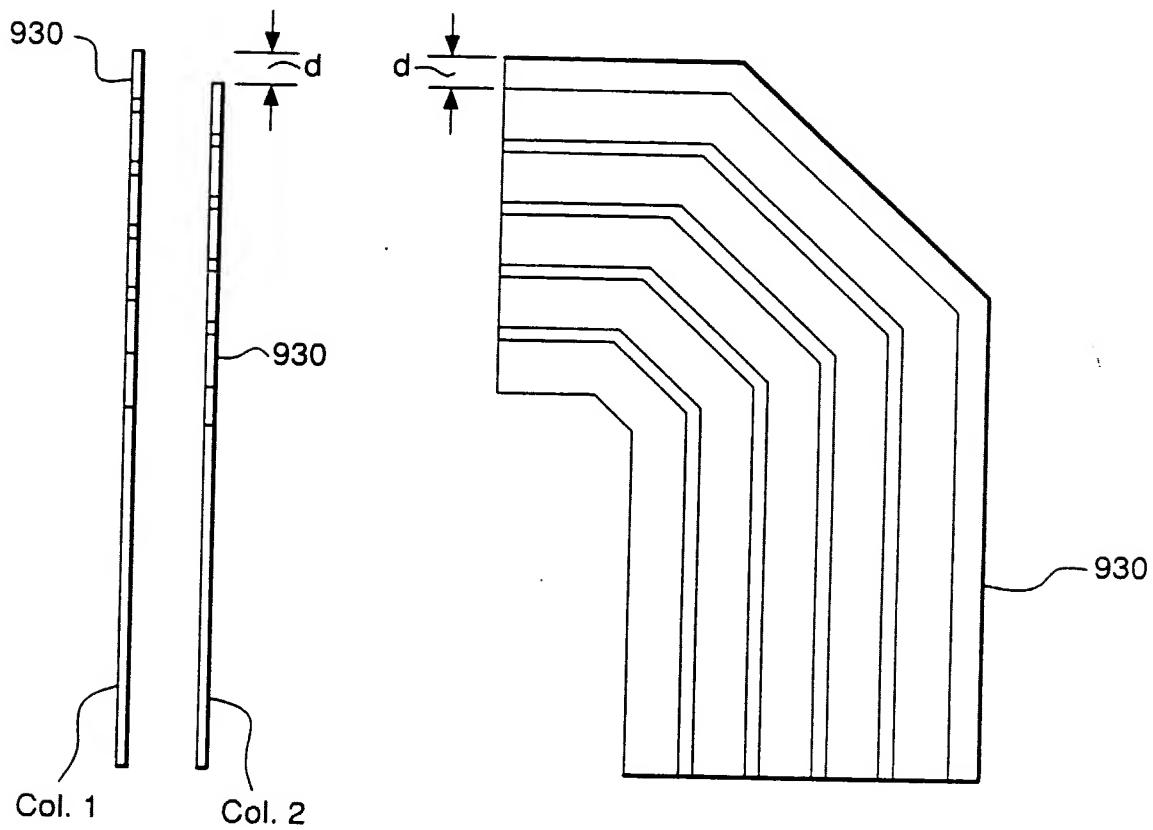


FIG. 20

FIG. 21

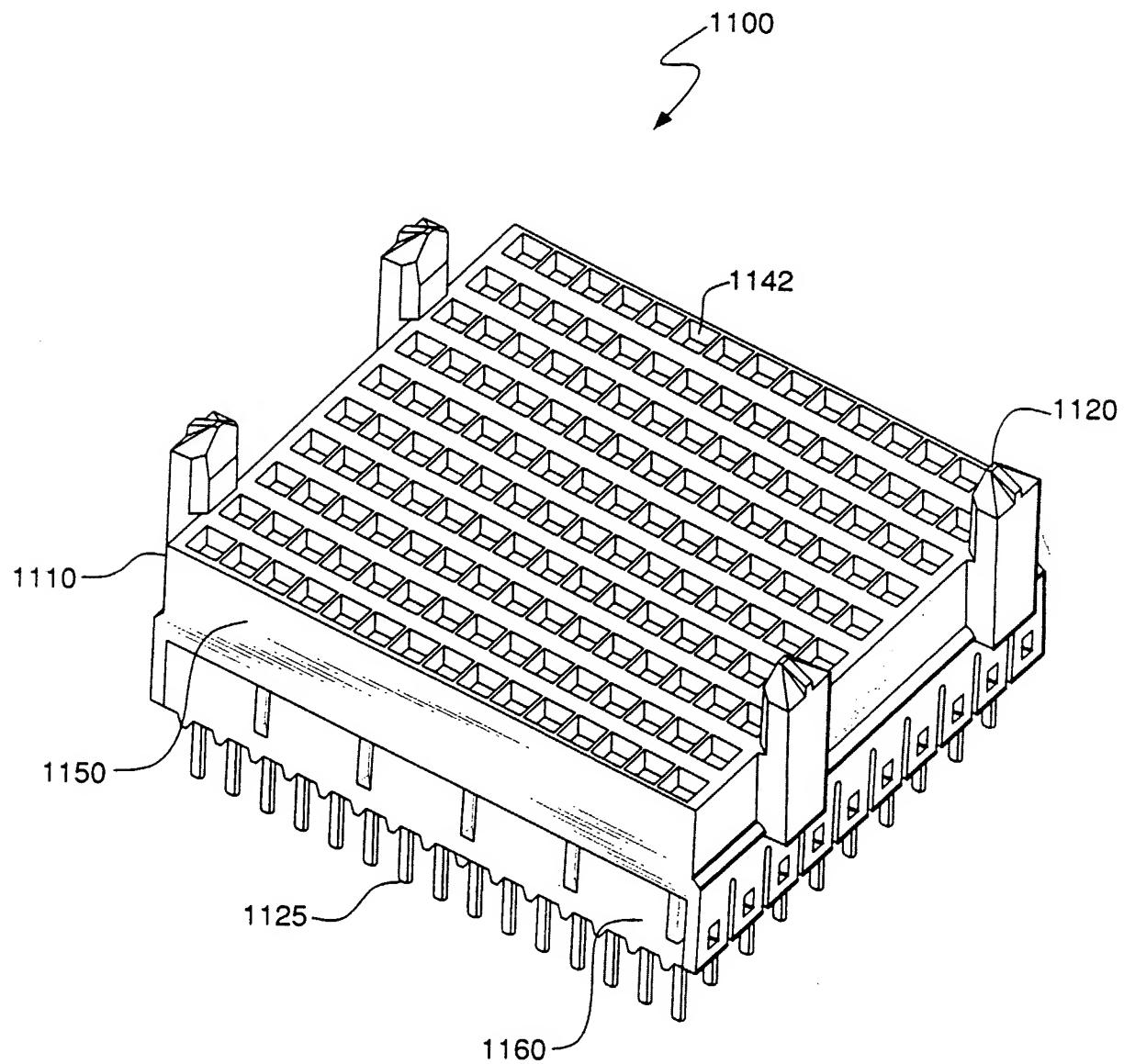


FIG. 22

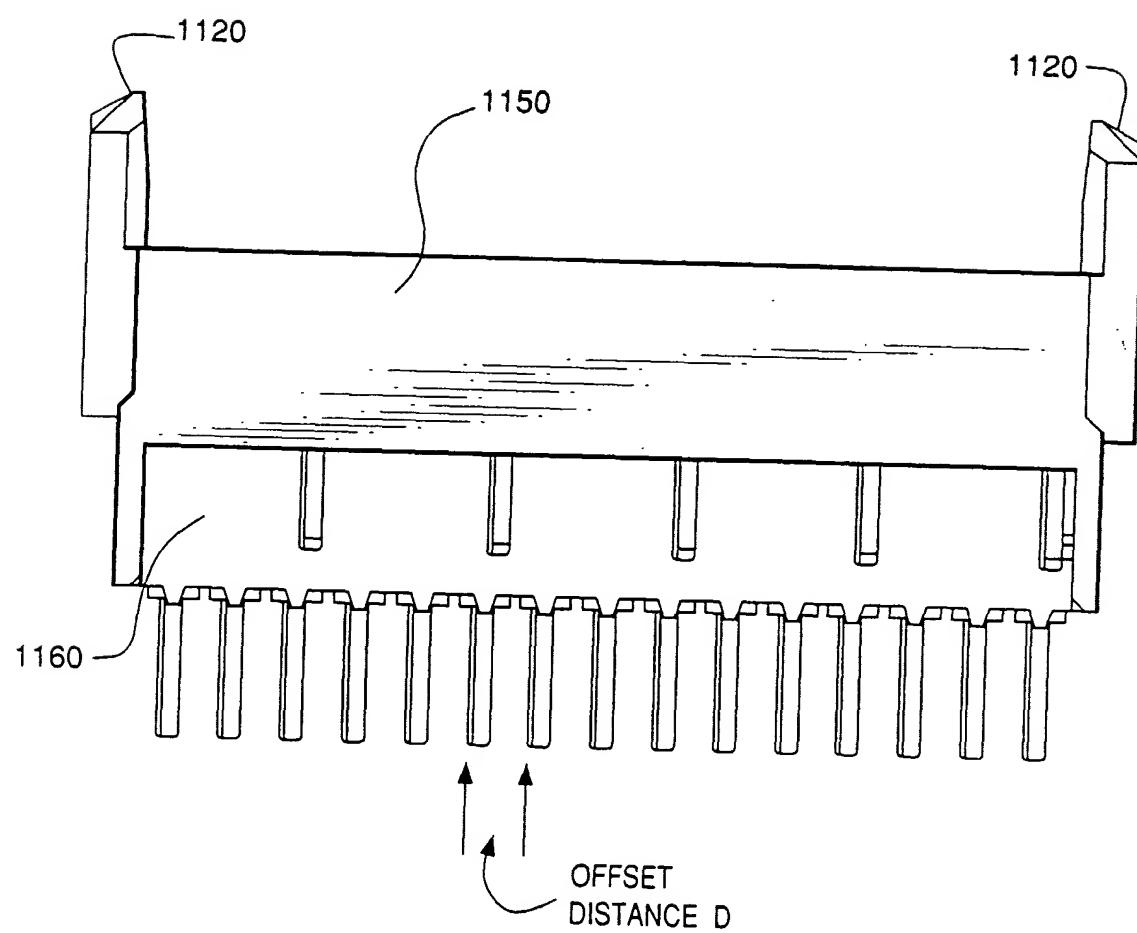


FIG. 23

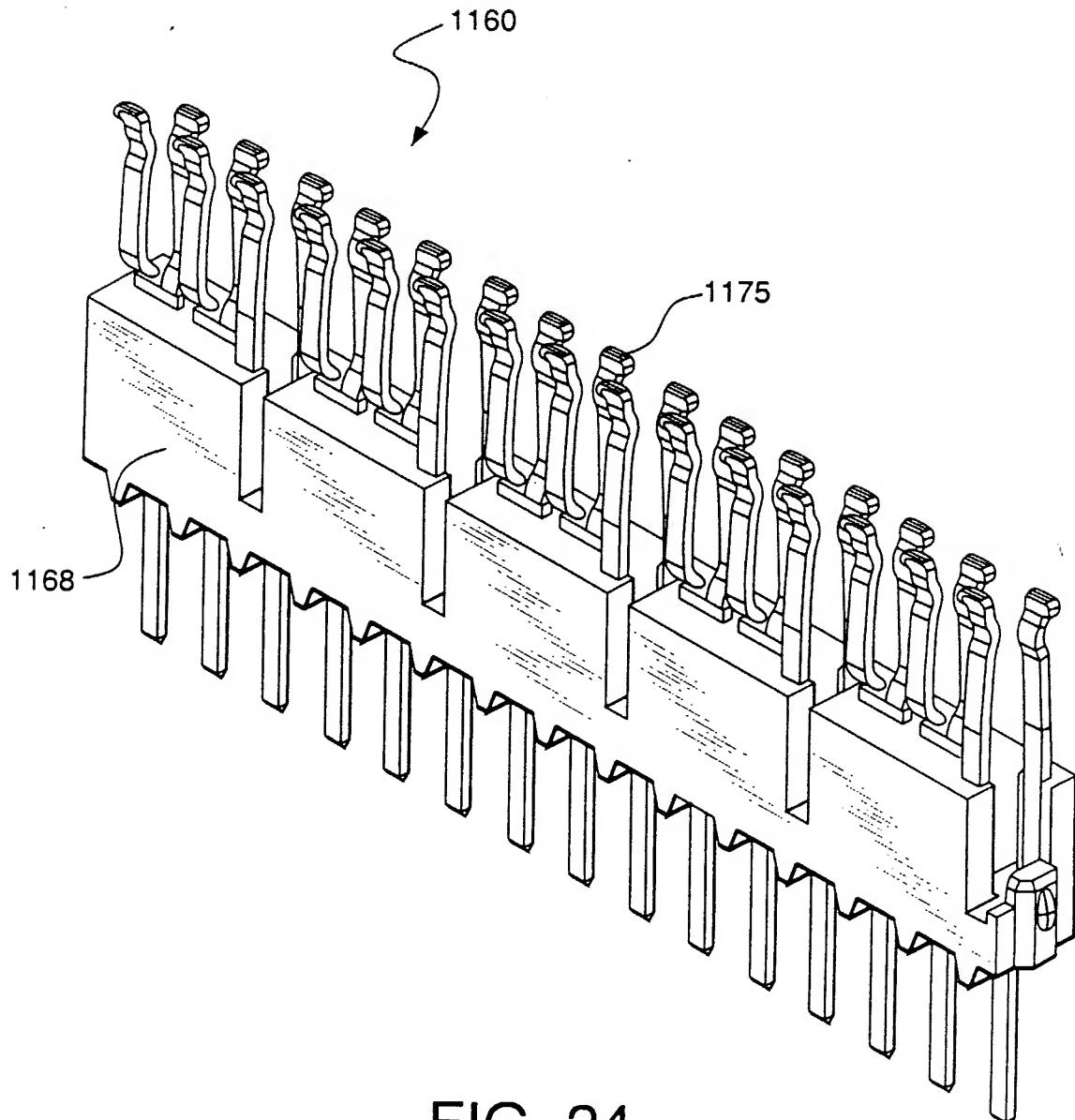
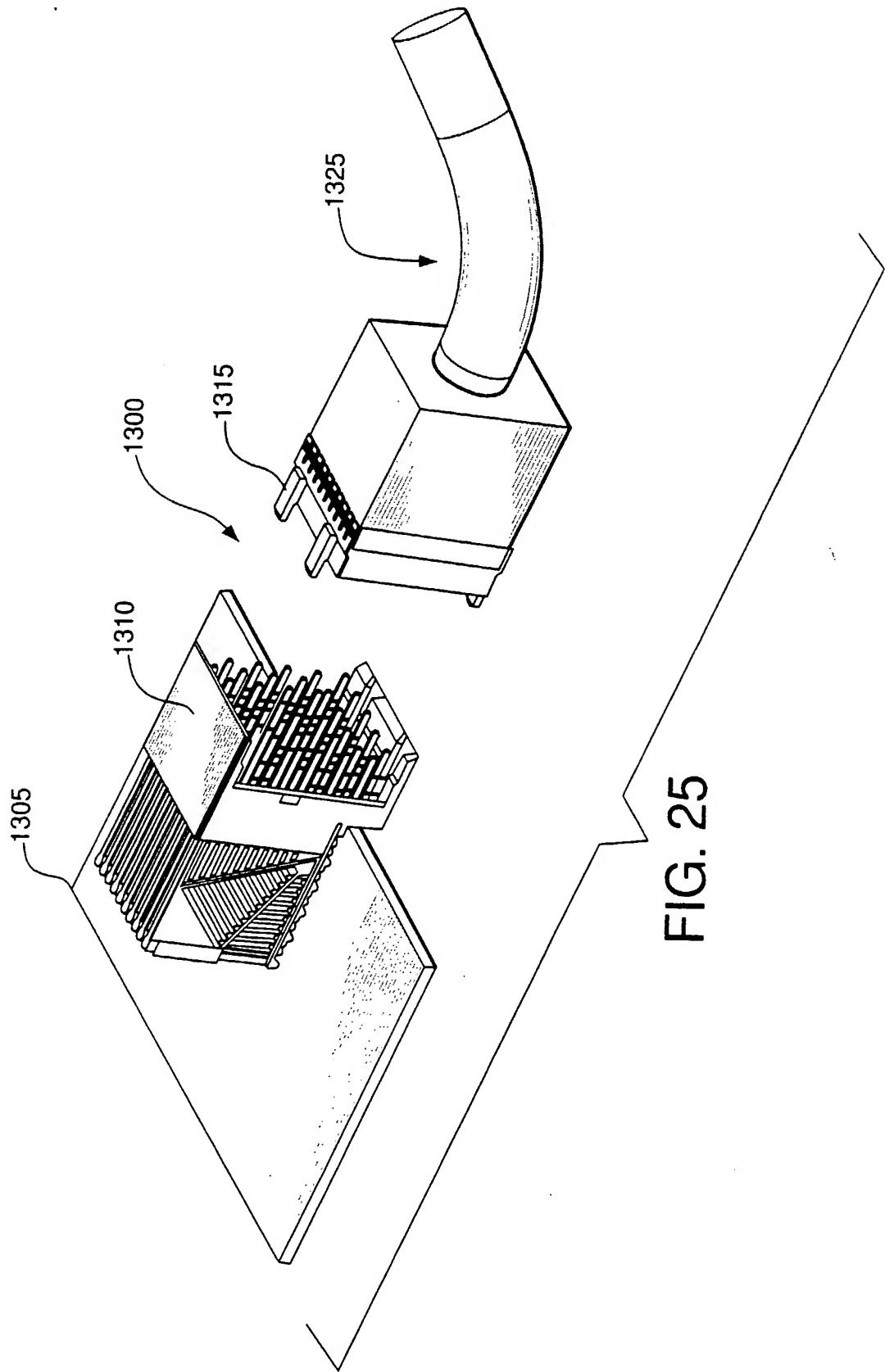


FIG. 24



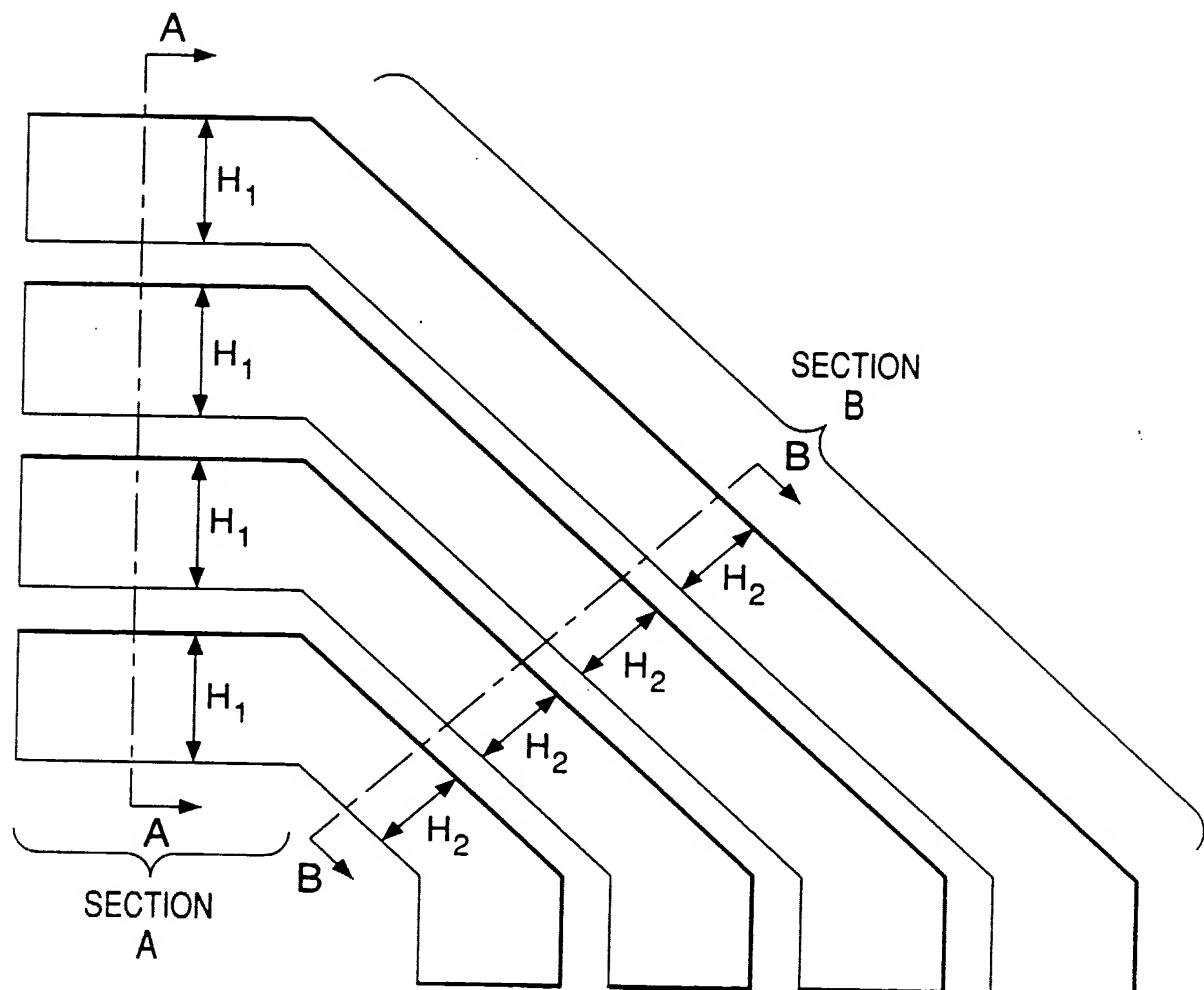


FIG. 26

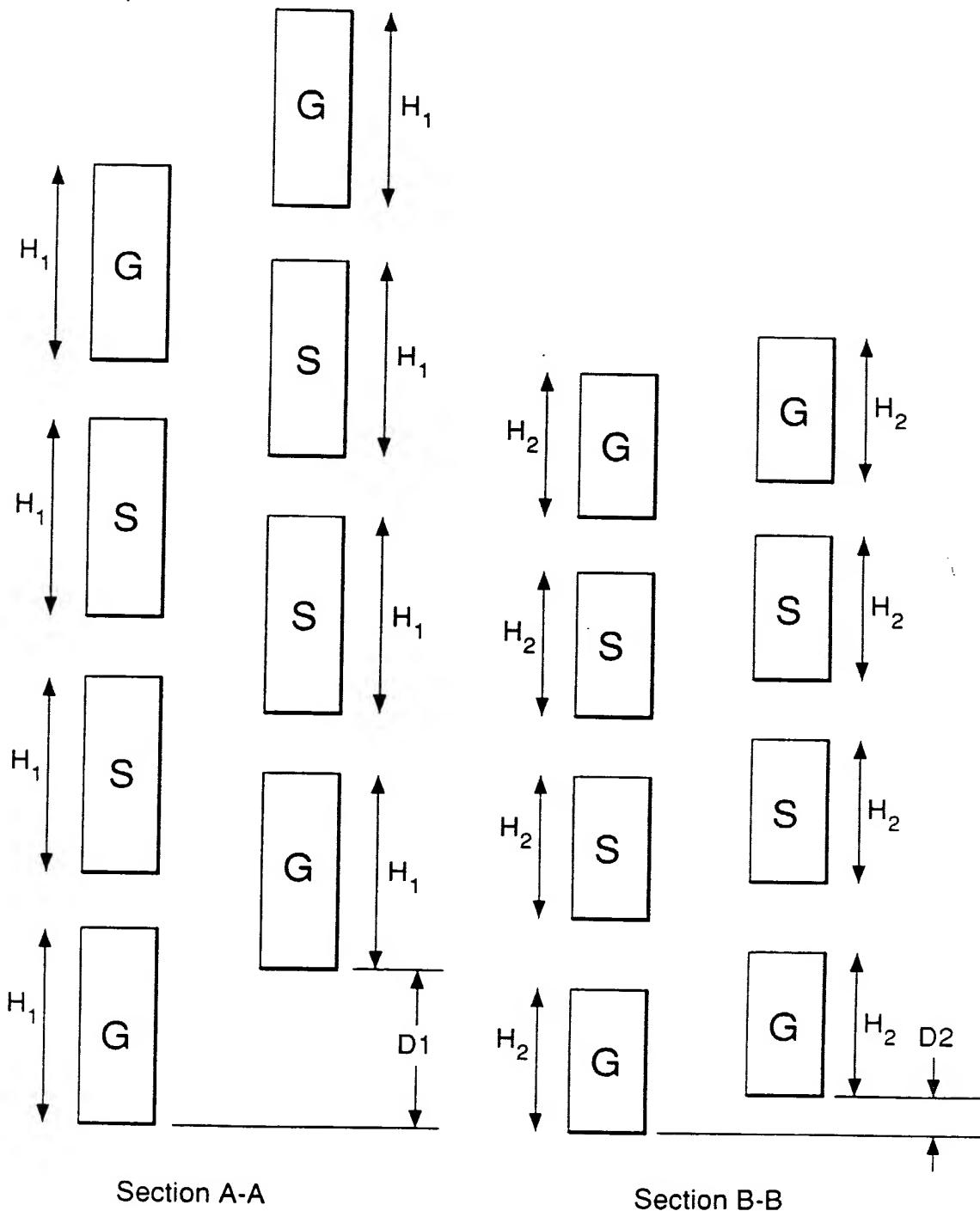


FIG. 27

FIG. 28

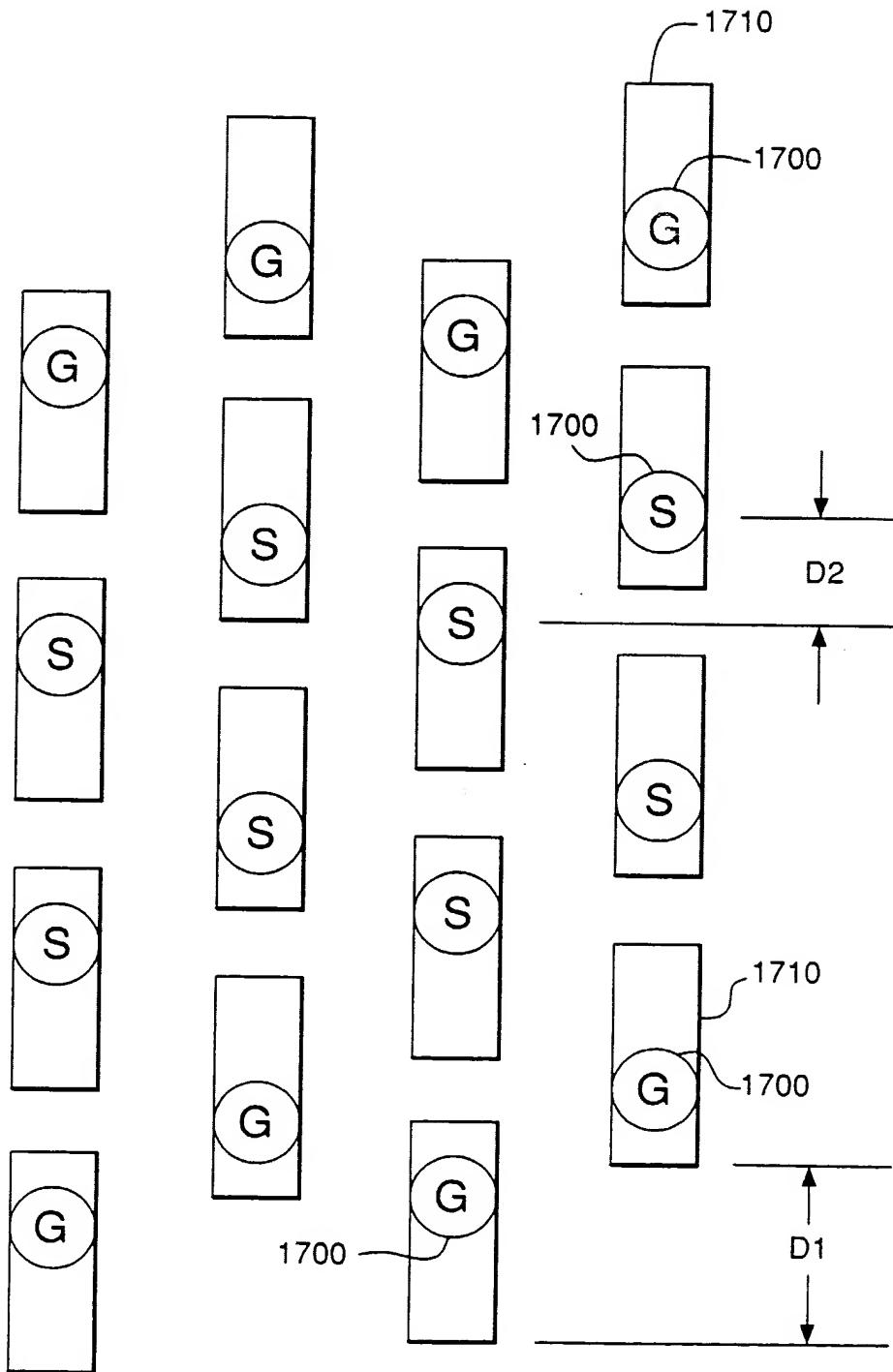


FIG. 29

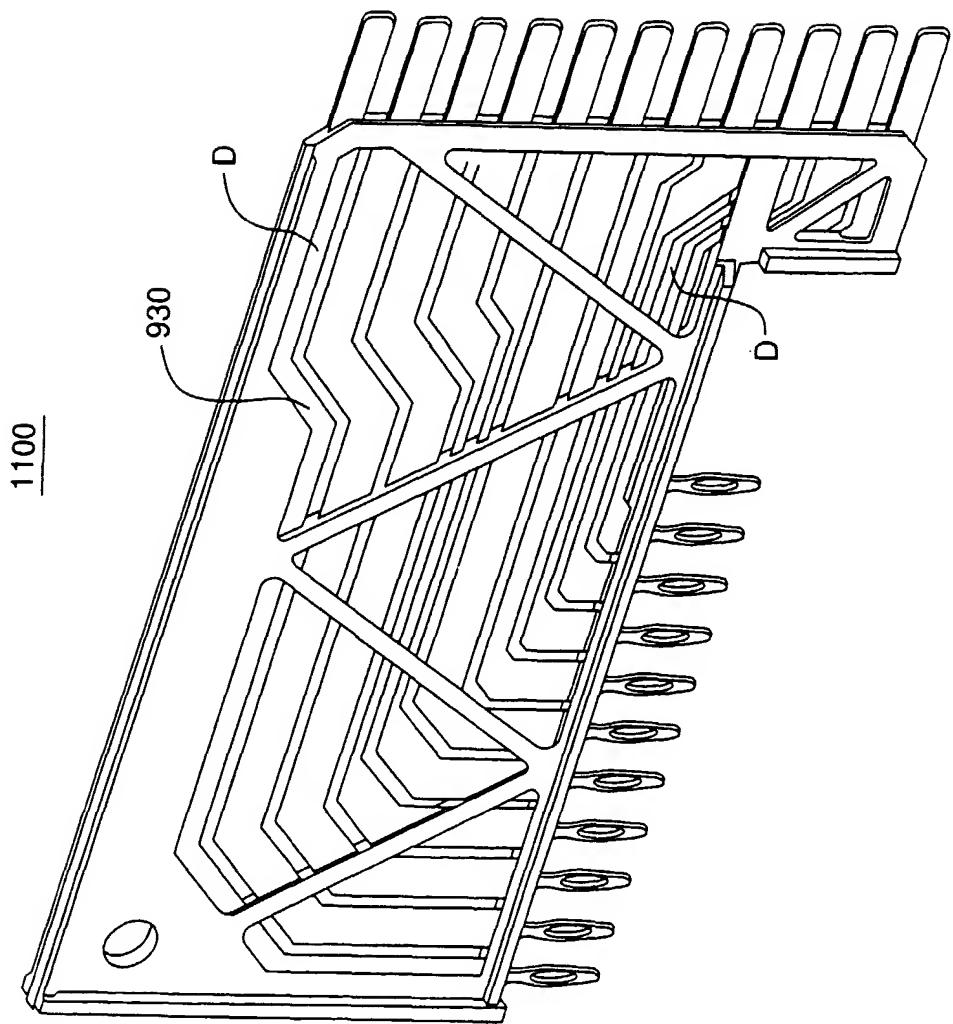


FIG. 30

Docket No.: FCI-2714

App No.: Not yet assigned

Filed: 08/05/03

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Inventors: Minich, et al.

Attorney: Joseph R. Condo

Phone: (215) 568-3100

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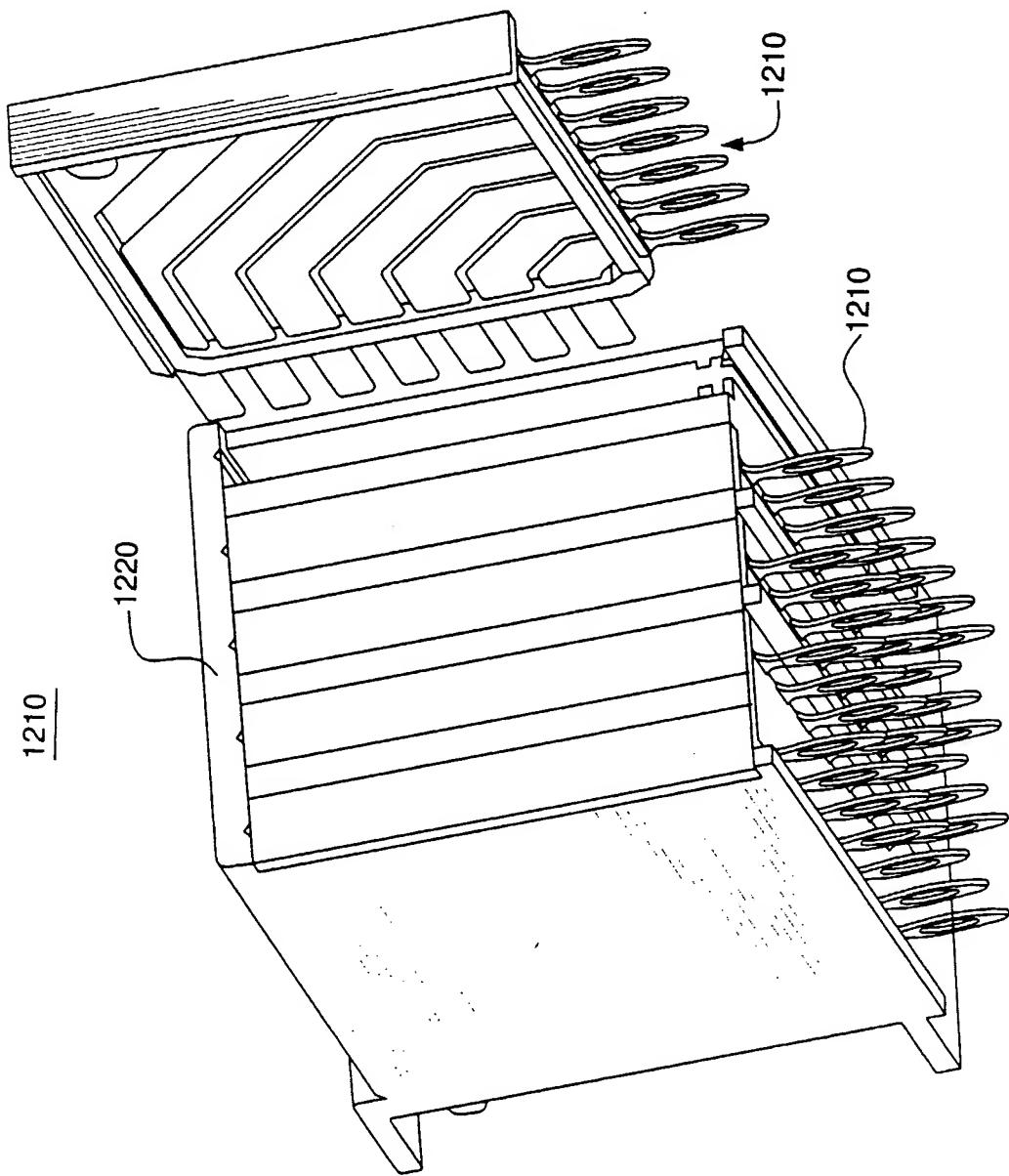


FIG. 31

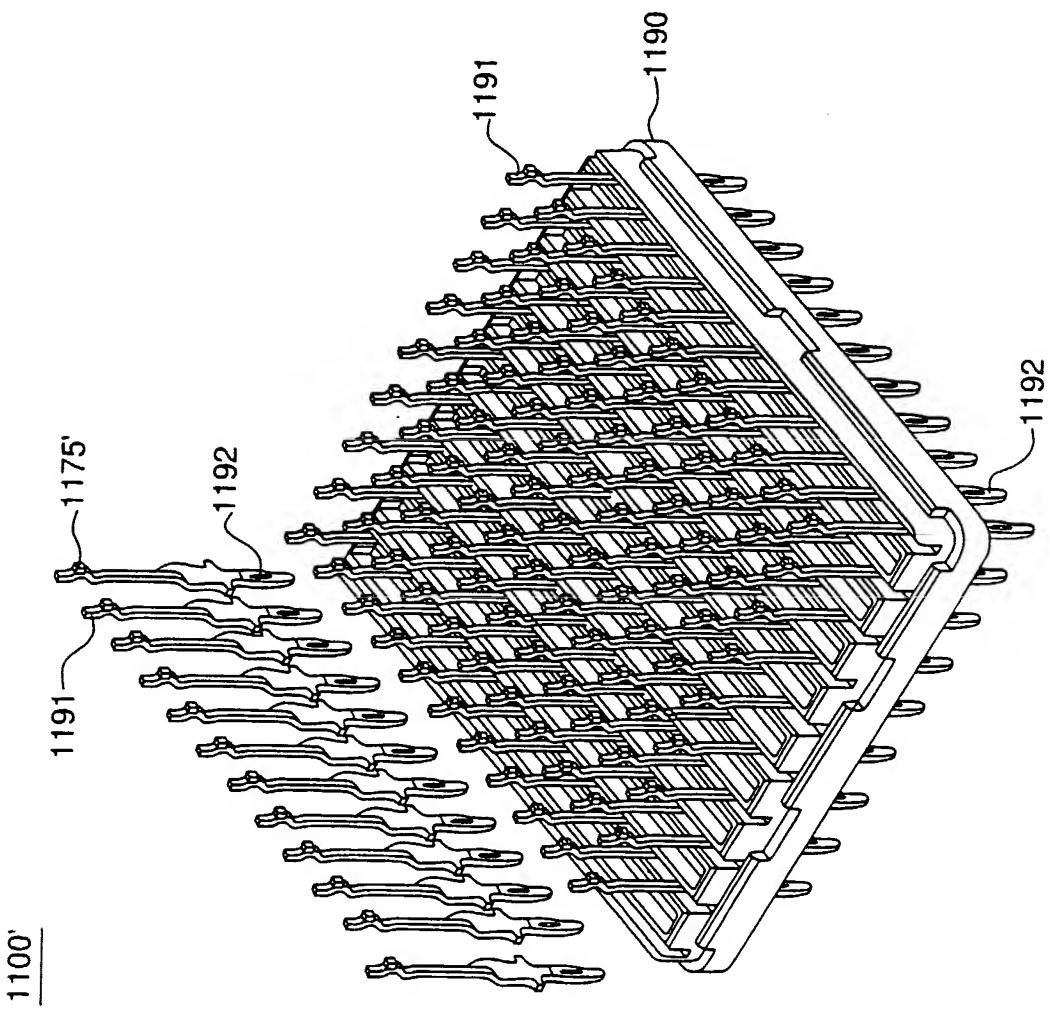


FIG. 32

Docket No.: FCI-2714

App No.: Not yet assigned

Filed: 08/05/03

Title: ELECTRICAL CONNECTORS HAVING CONTACTS THAT MAY BE  
SELECTIVELY DESIGNATED AS EITHER SIGNAL OR GROUND CONTACTS

Inventors: Minich, et al.

Attorney: Joseph R. Condo

Phone: (215) 568-3100

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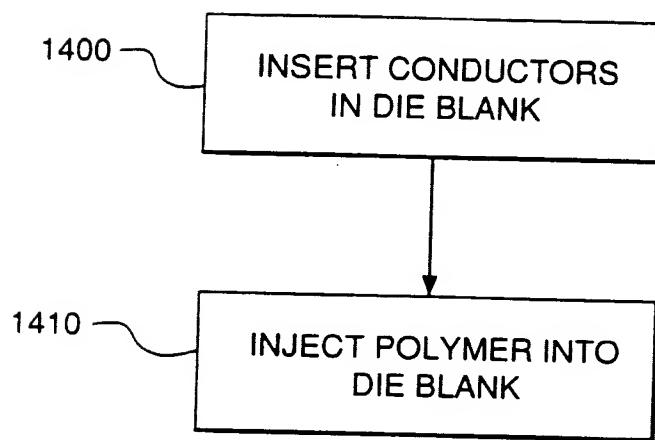
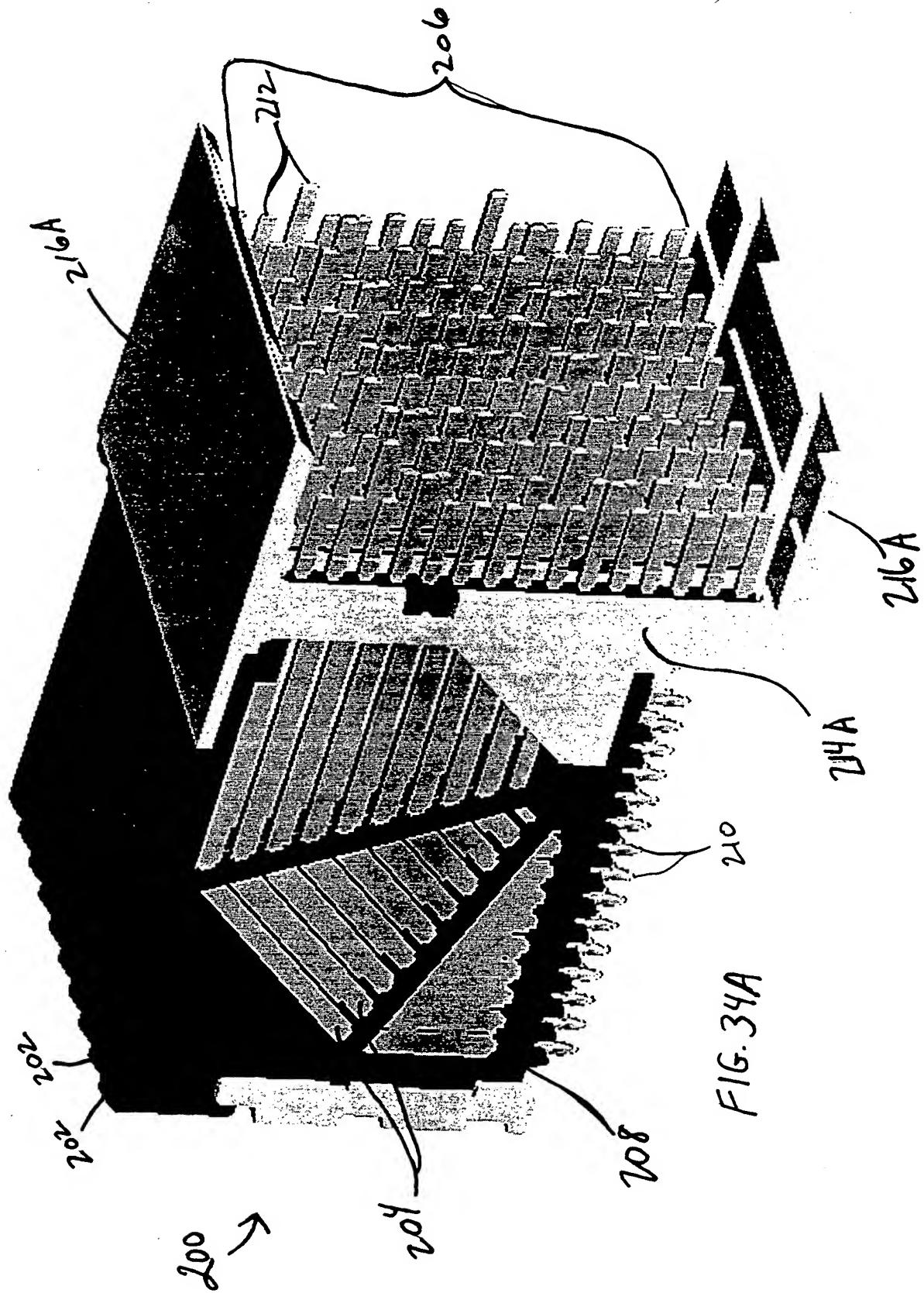
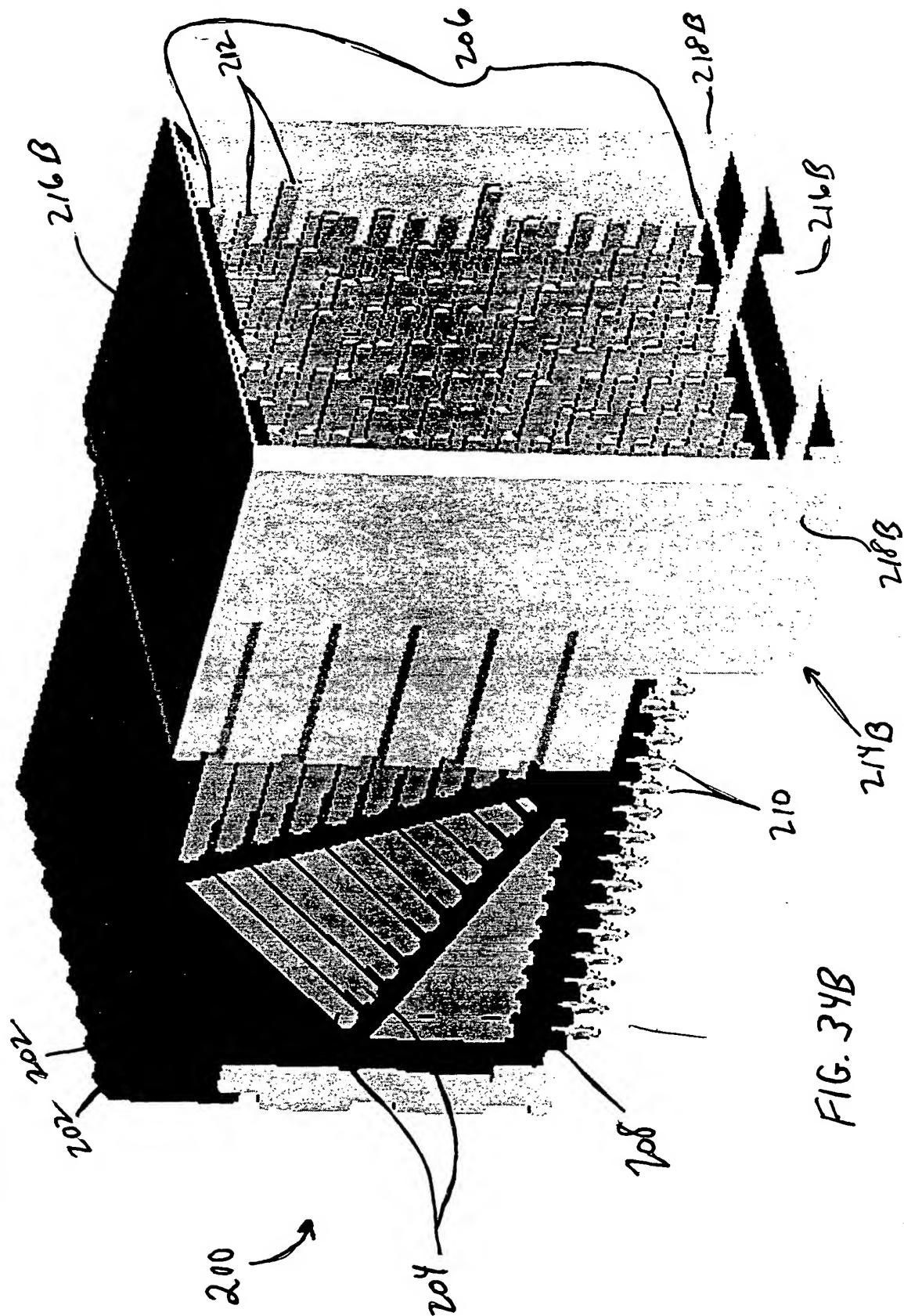


FIG. 33





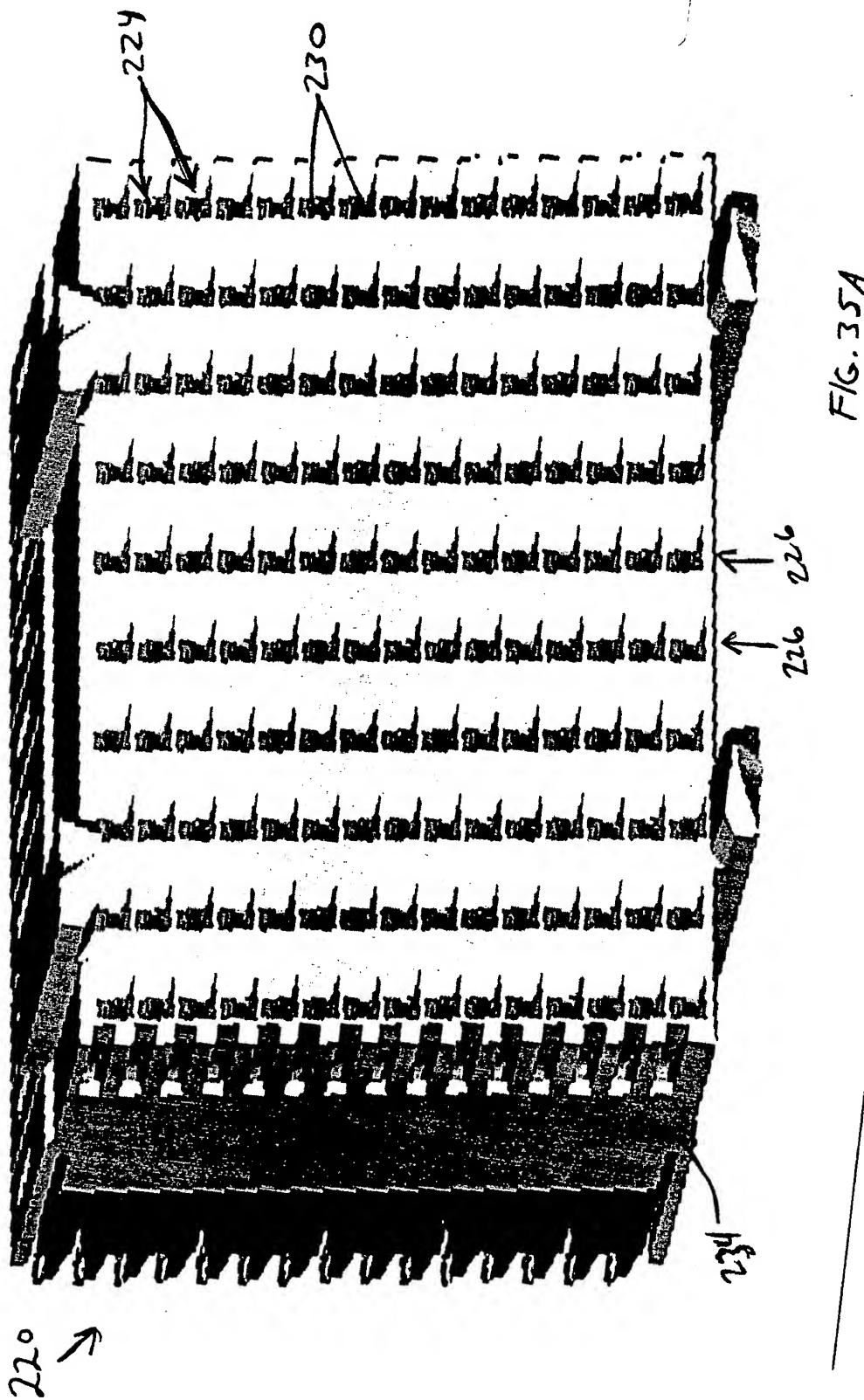
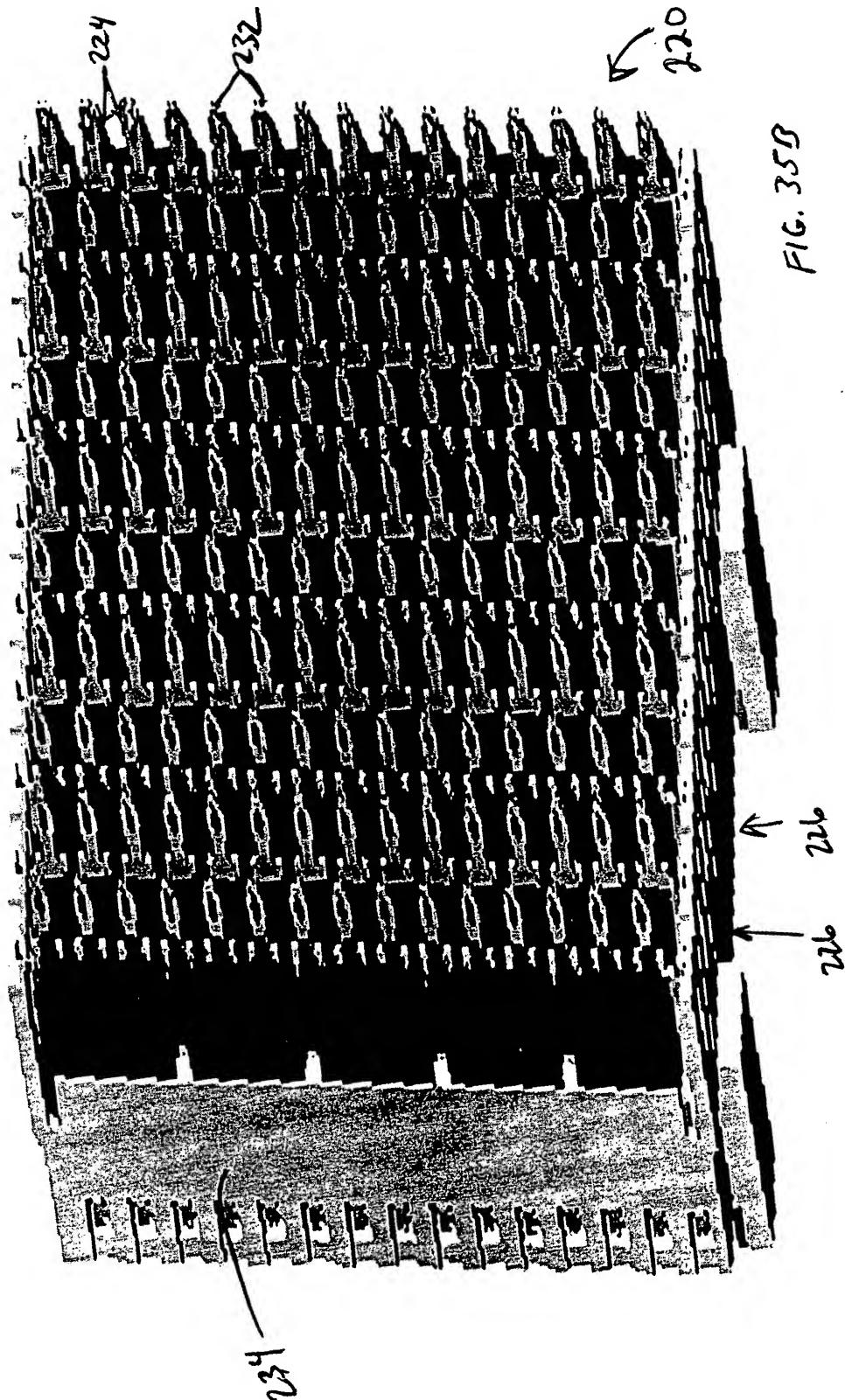
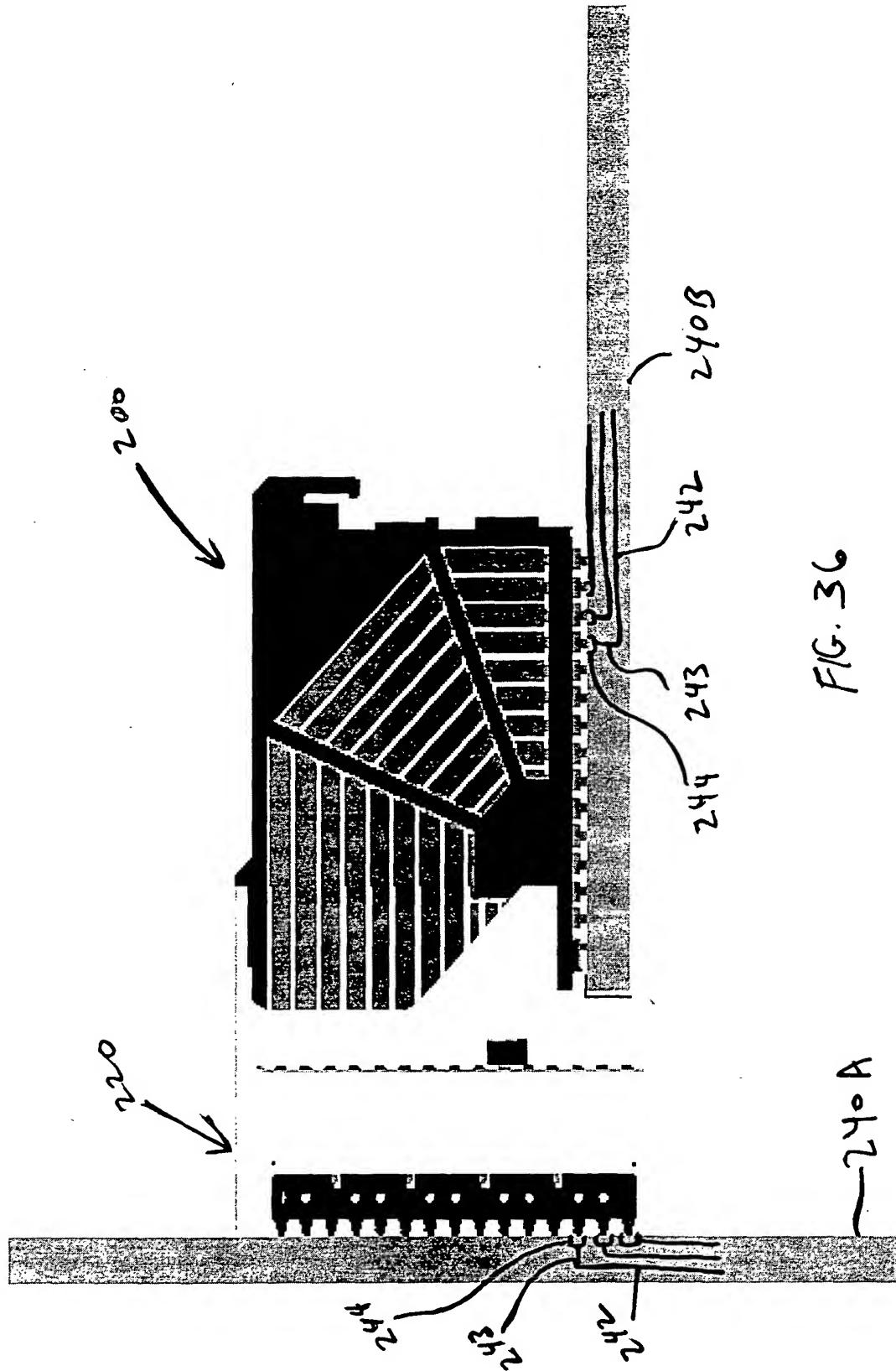


FIG. 35A

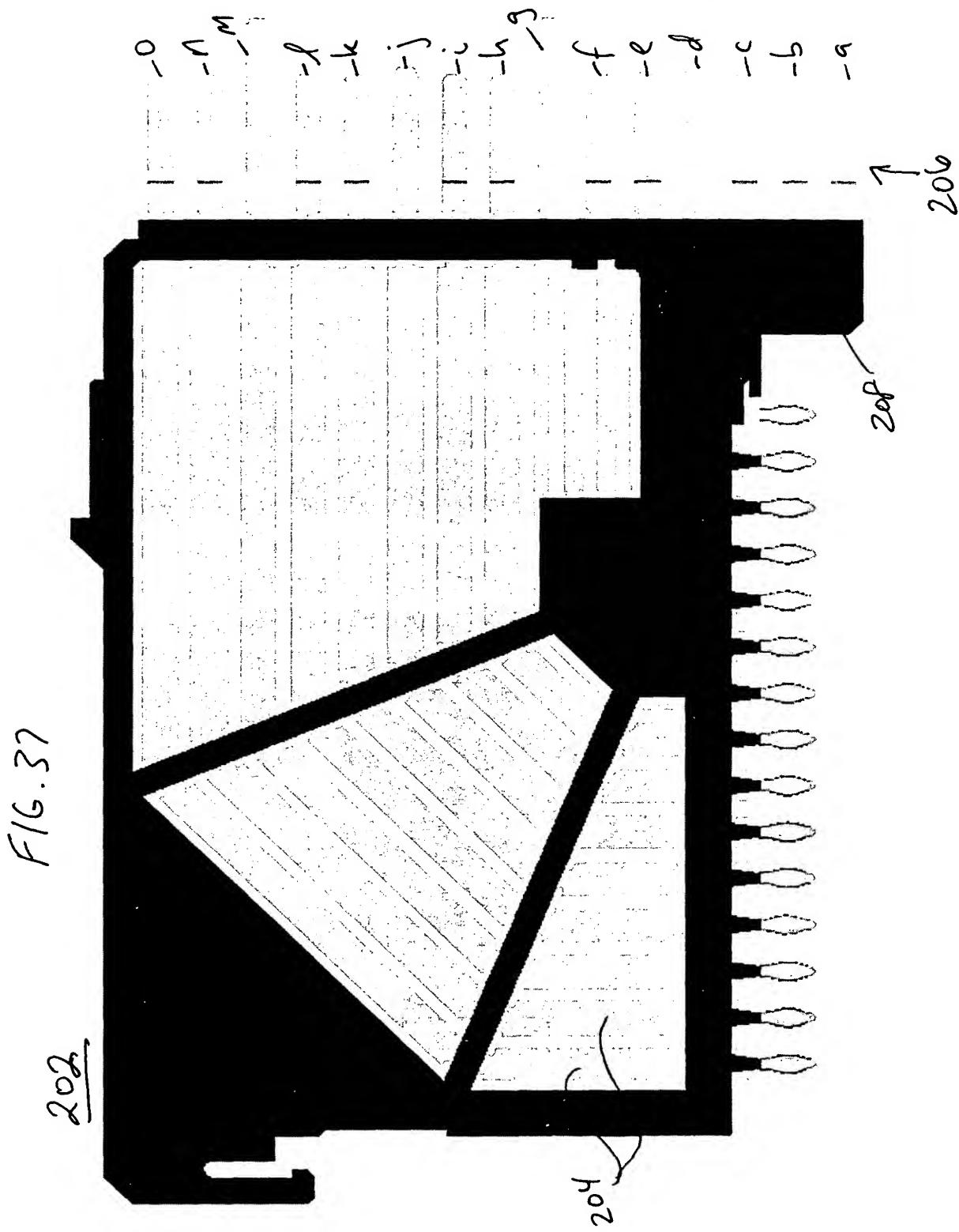
Docket No.: FCI-2714  
App No.: Not yet assigned  
Title: ELECTRICAL CONNECTORS HAVING CONTACTS THAT MAY BE  
SELECTIVELY DESIGNATED AS EITHER SIGNAL OR GROUND CONTACTS  
Inventors: Minich, et al.  
Attorney: Joseph R. Condo  
Sheet 42 of 68

Filed: 08/05/03  
Phone: (215) 568-3100





Docket No.: FCI-2714  
App No.: Not yet assigned Filed: 08/05/03  
Title: ELECTRICAL CONNECTORS HAVING CONTACTS THAT MAY BE  
SELECTIVELY DESIGNATED AS EITHER SIGNAL OR GROUND CONTACTS  
Inventors: Minich, et al.  
Attorney: Joseph R. Condo Phone: (215) 568-3100  
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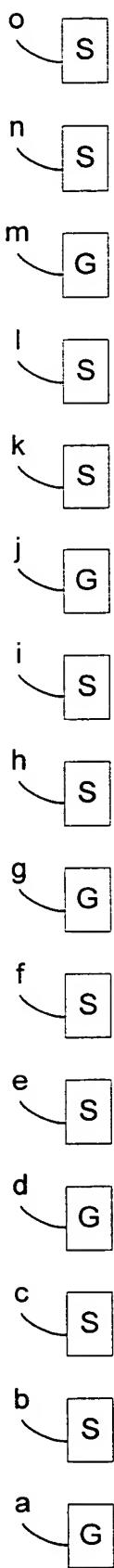


FIG. 38A

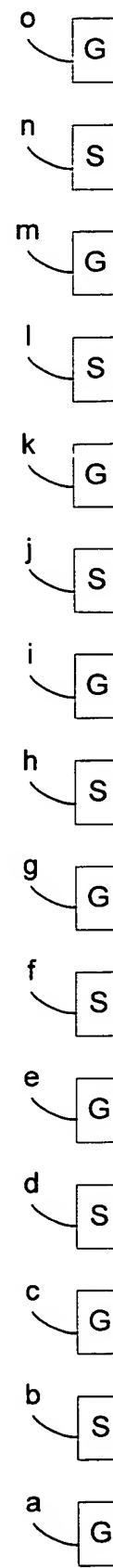


FIG. 38B

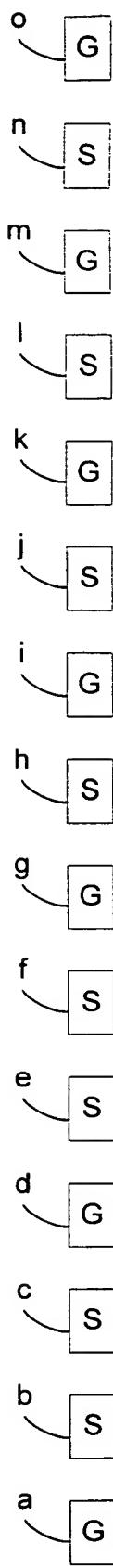
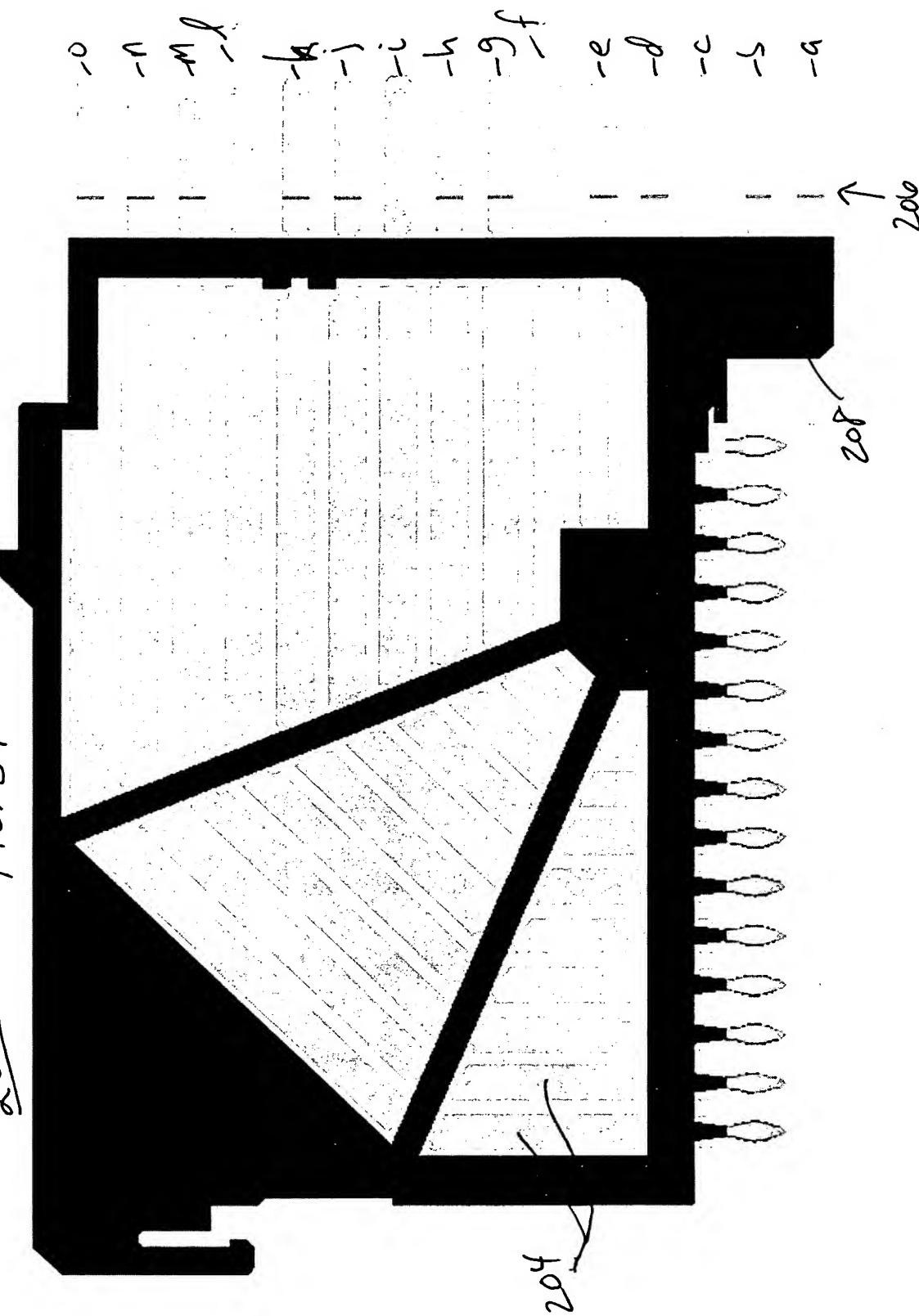


FIG. 38C

202

FIG. 39



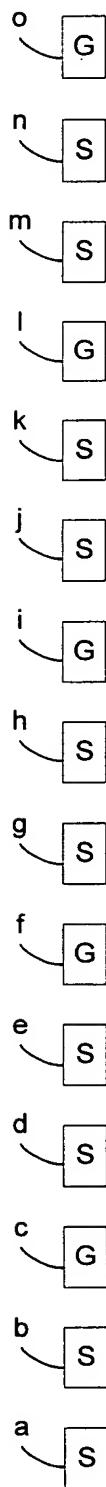


FIG. 40A

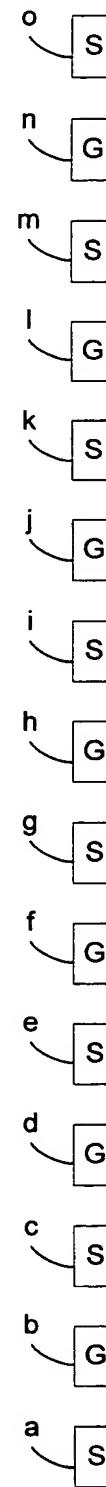


FIG. 40B

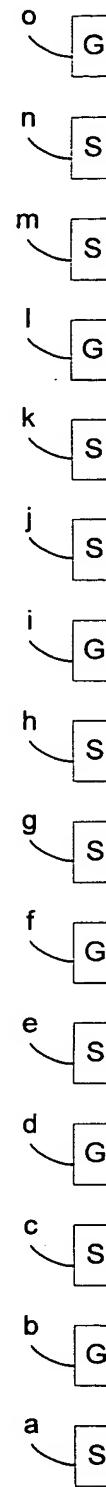


FIG. 40C

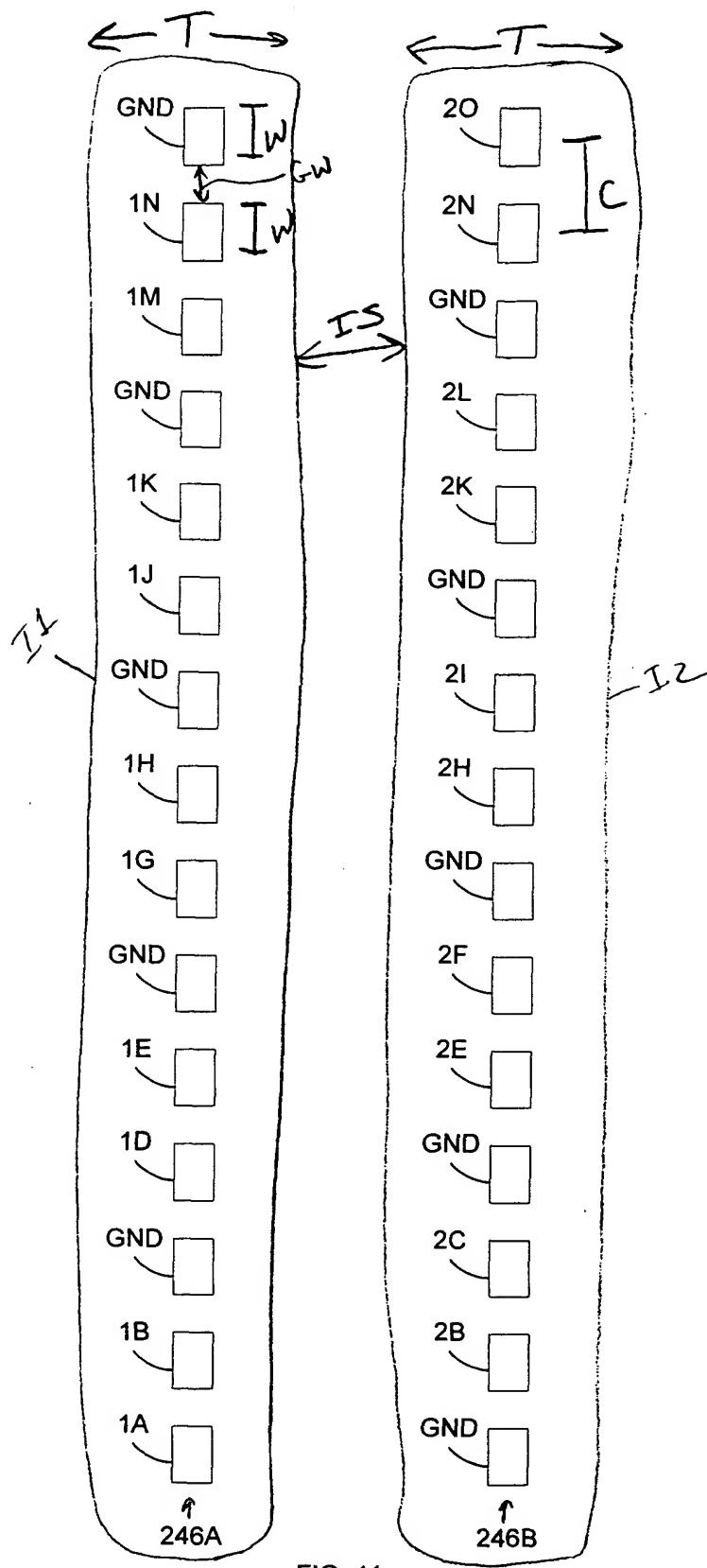


FIG. 41

## IMPEDANCE

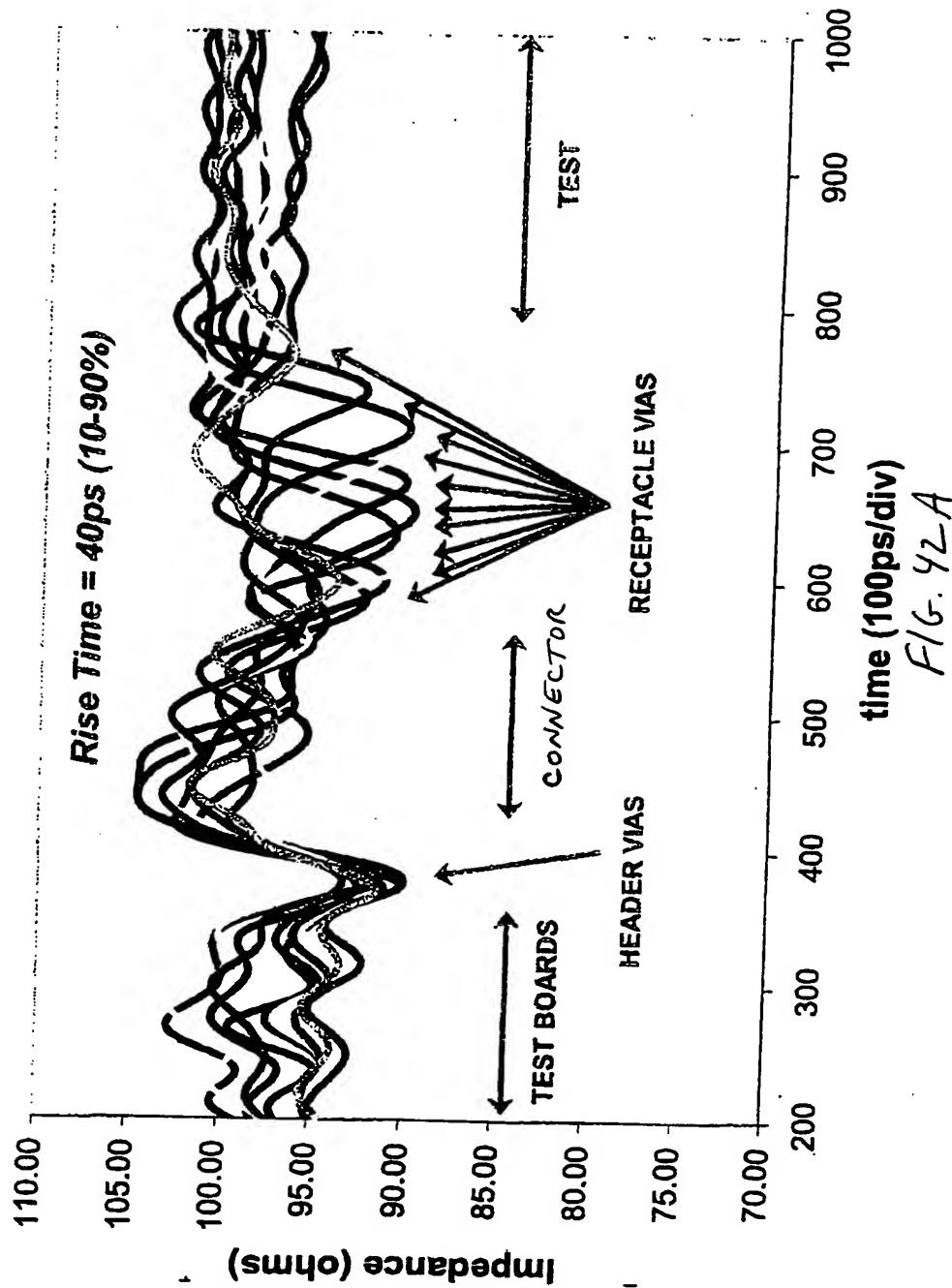
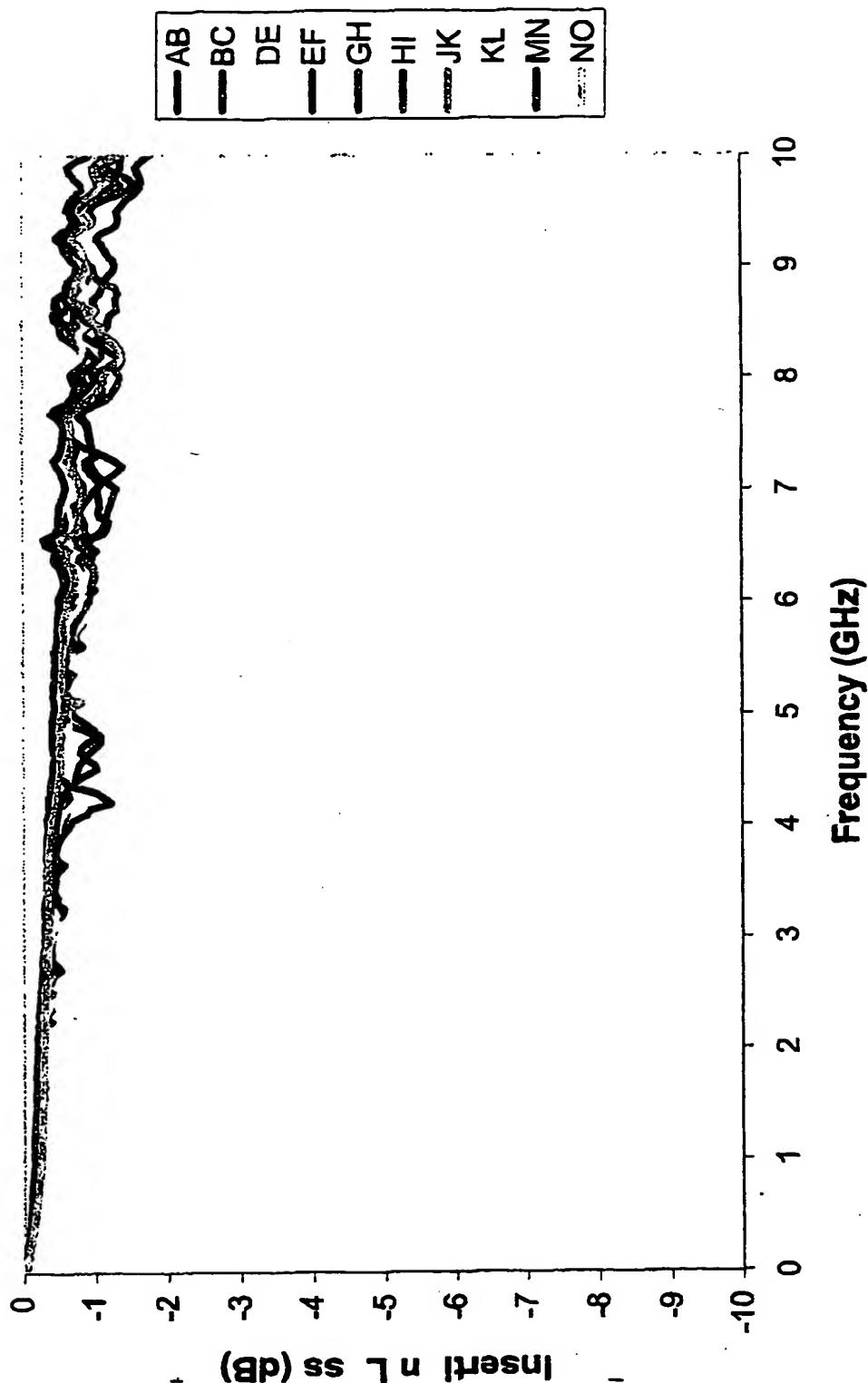


FIG. 42B  
INSERTION LOSS



# CROSSTALK

## Worst-Case Multi-Active Near-End Crosstalk

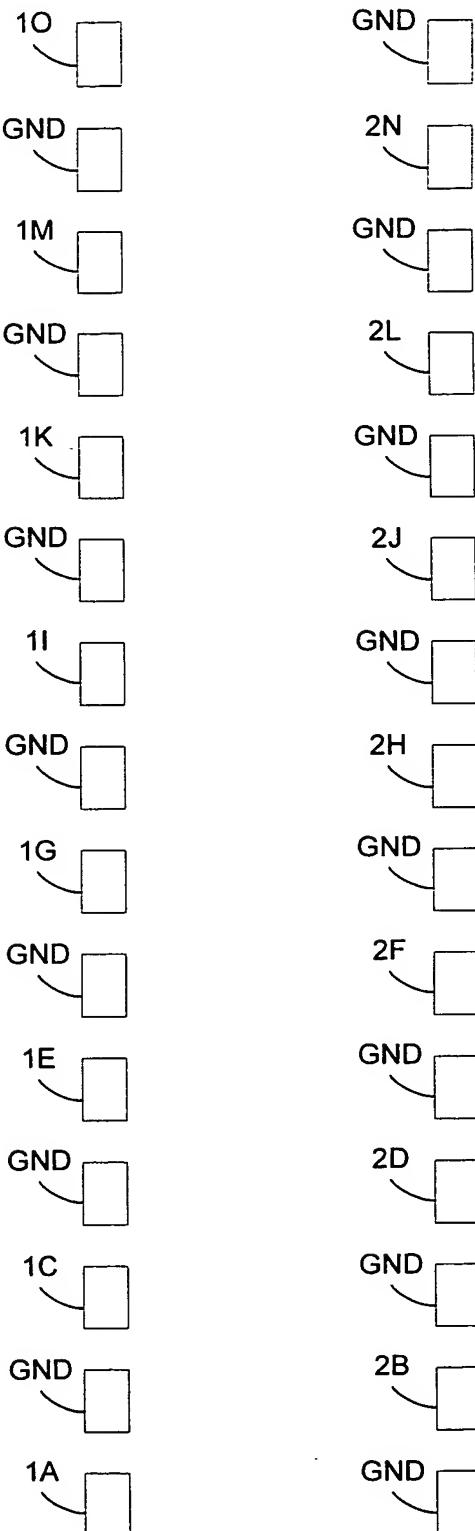
	AB	BC	DE	EF	GH	HI	JK	KL	MN	NO
40ps (10-90%)	1.9	2.4	2.4	2.3	2.5	2.2	2.4	2.1	2.6	1.7
100ps (10-90%)	1.4	1.8	1.7	1.8	1.9	1.7	2.0	1.7	1.8	1.0

FIG. 42C

## Worst-Case Multi-Active Far-End Crosstalk

	AB	BC	DE	EF	GH	HI	JK	KL	MN	NO
40ps (10-90%)	2.7	1.8	5.0	3.4	4.2	3.2	4.1	2.9	2.4	1.1
100ps (10-90%)	1.3	0.8	2.2	1.5	1.9	1.4	1.8	1.3	1.1	0.5

FIG. 42D



246A

246B

FIG. 43

FIG. 44A  
IMPEDANCE

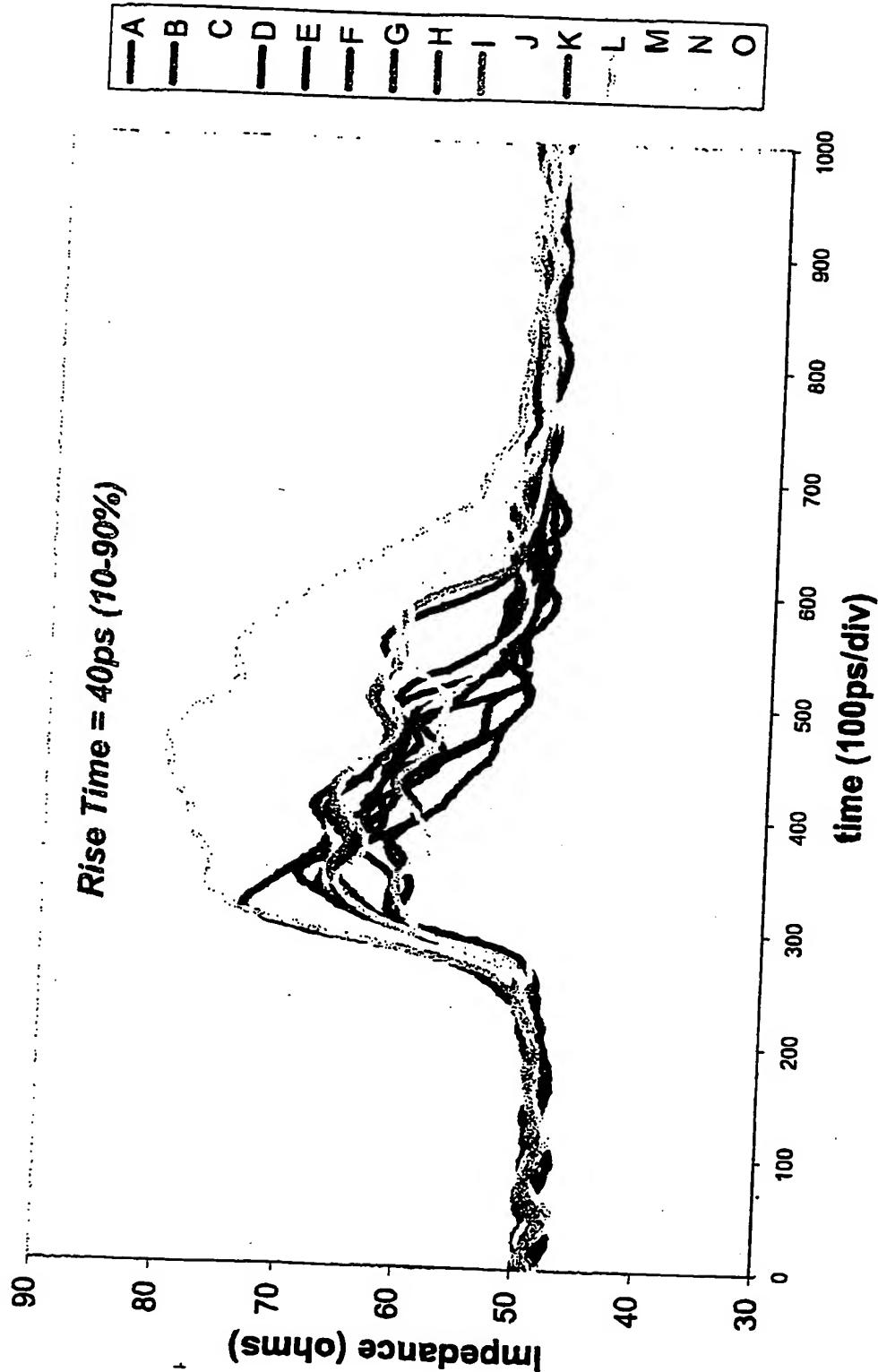


FIG. 44B  
IMPEDANCE

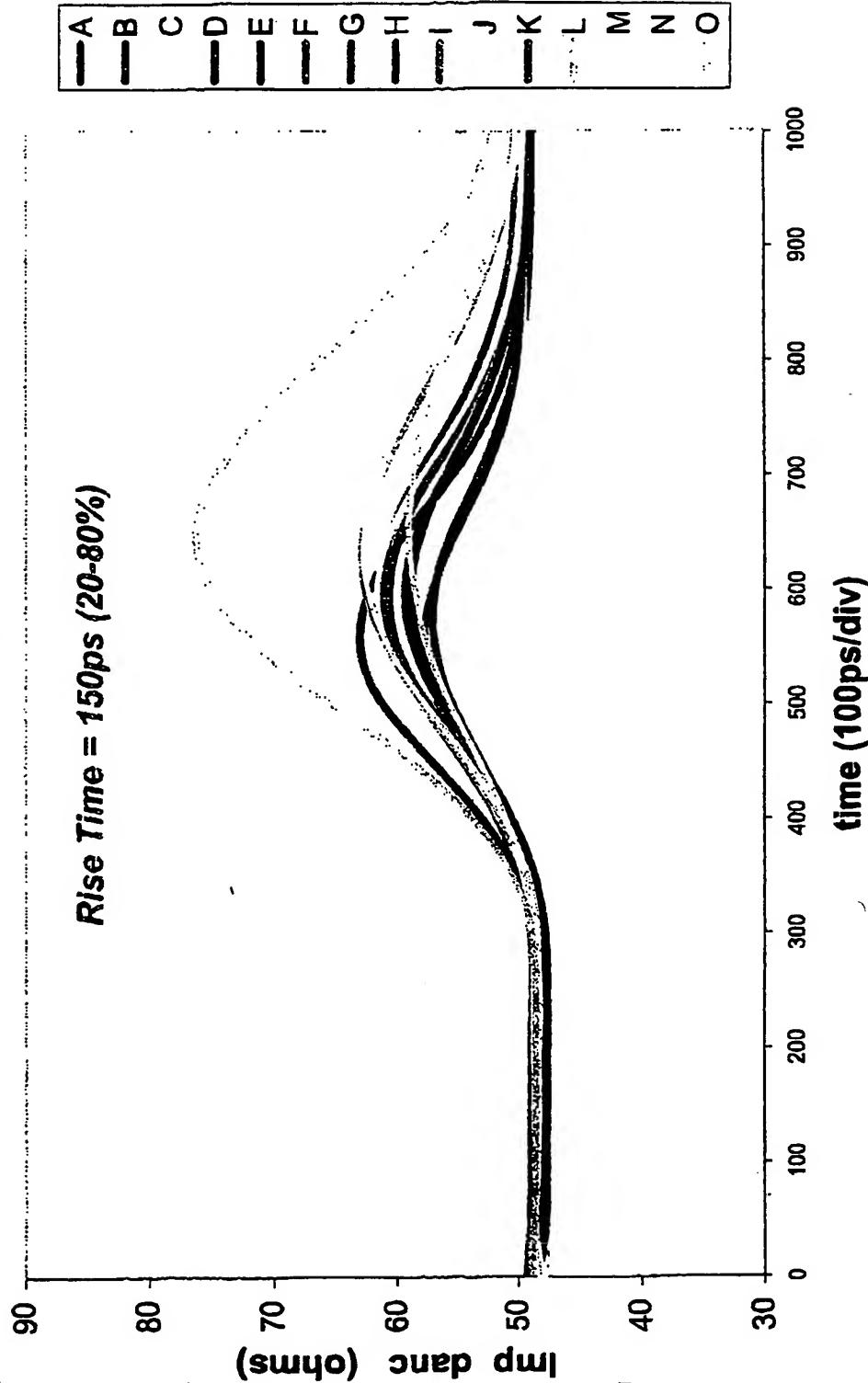
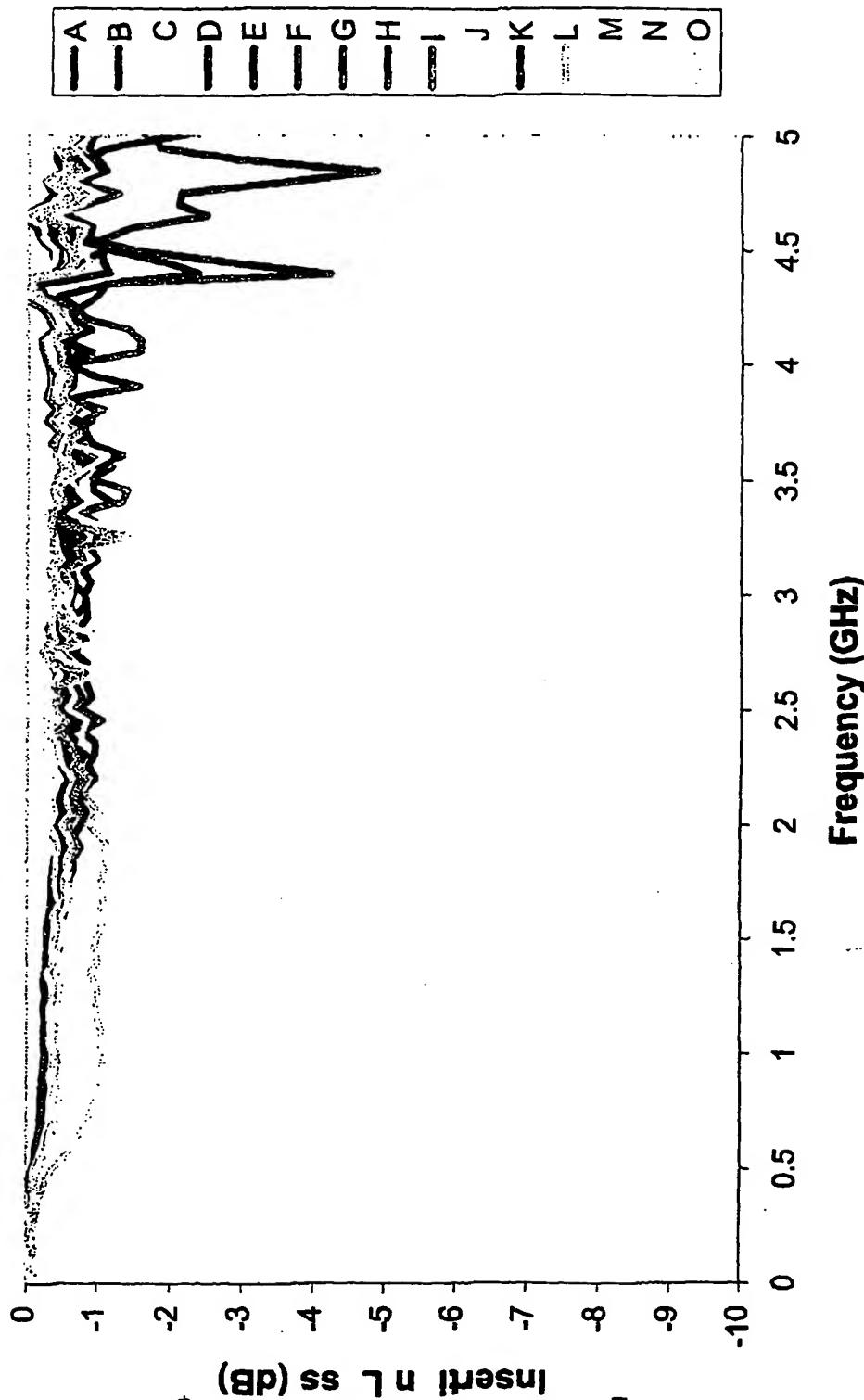


FIG. 44C  
INSERTION LOSS



**CROSSTALK****Worst-Case Multi-Active Near-End Crosstalk**

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>	<b>L</b>	<b>M</b>	<b>N</b>	<b>O</b>
150ps (20-80%)	5.0	7.3	7.3	7.4	6.0	6.2	7.2	7.6	8.0	8.7	8.7	7.6	8.0	7.8	4.2

FIG. 44D

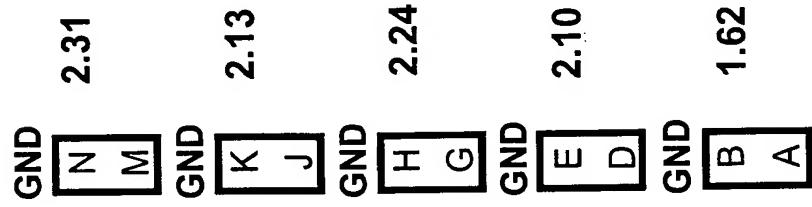
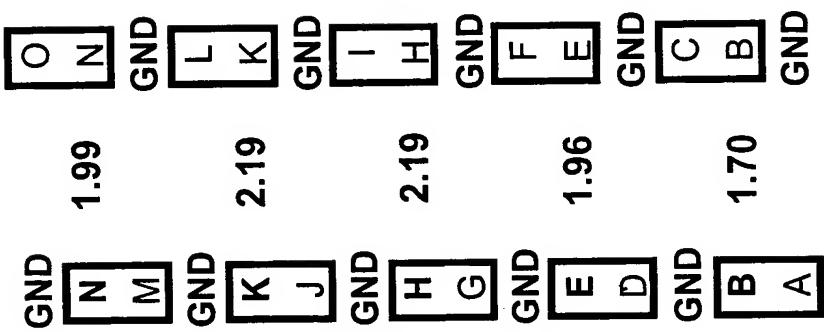
**Worst-Case Multi-Active Far-End Crosstalk**

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>	<b>L</b>	<b>M</b>	<b>N</b>	<b>O</b>
150ps (20-80%)	2.0	2.9	2.4	2.4	2.6	2.4	2.9	2.9	2.5	2.8	2.6	2.7	2.8	2.8	1.7

FIG. 44E

**Single-Ended IMLA to Differential IMLA**  
**Near-End Crosstalk Approximation**

**40ps (10-90%)**



**FIG. 45A**

Single-Ended IMLA to Differential IMLA  
Far-End Crosstalk Approximation

40ps (10-90%)

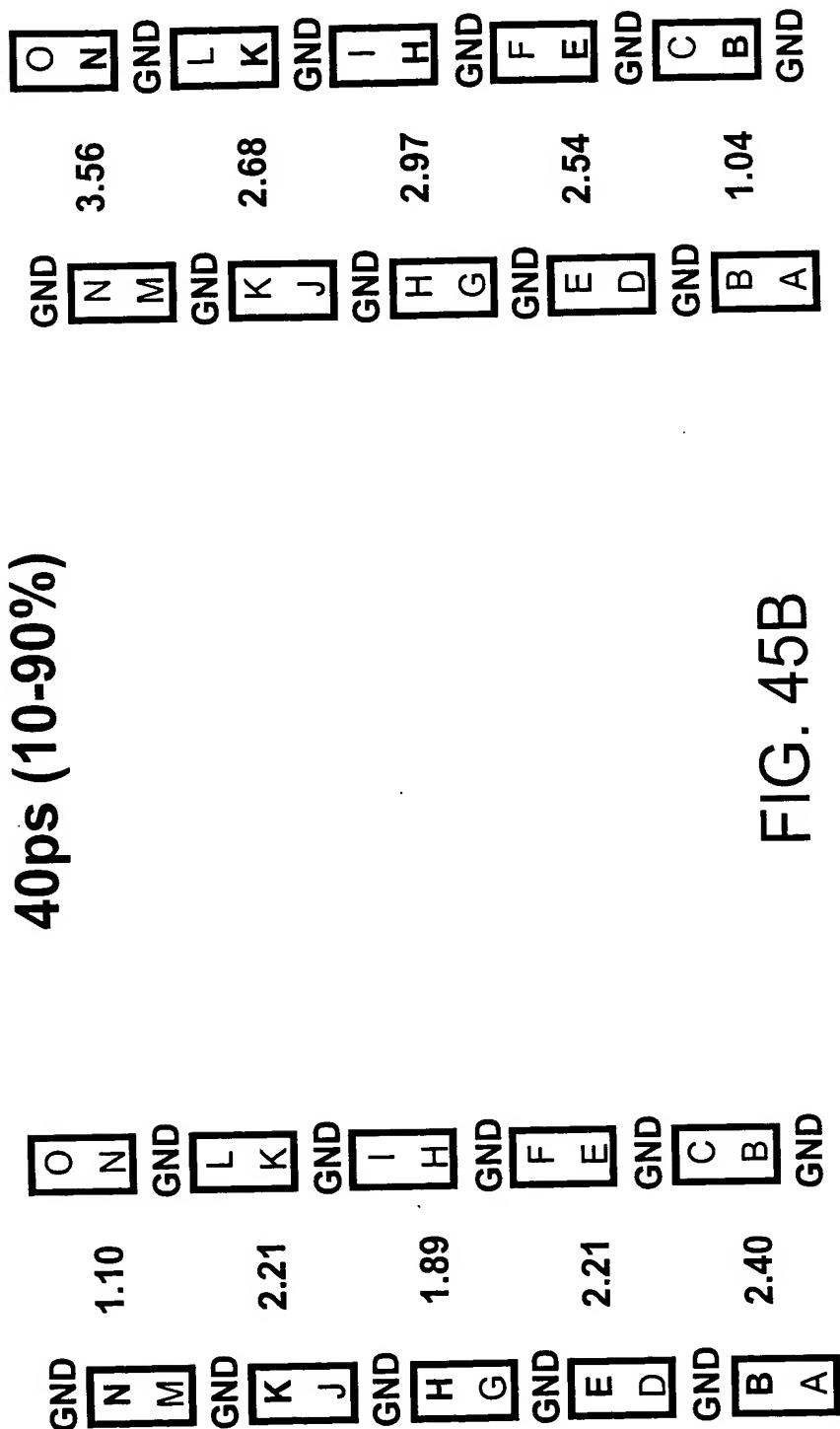


FIG. 45B

# Single-Ended IMLA to Differential IMLA Near-End Crosstalk Approximation

100ps (10-90%)

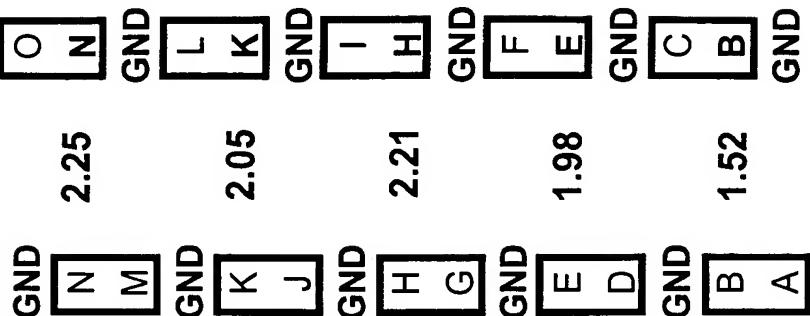
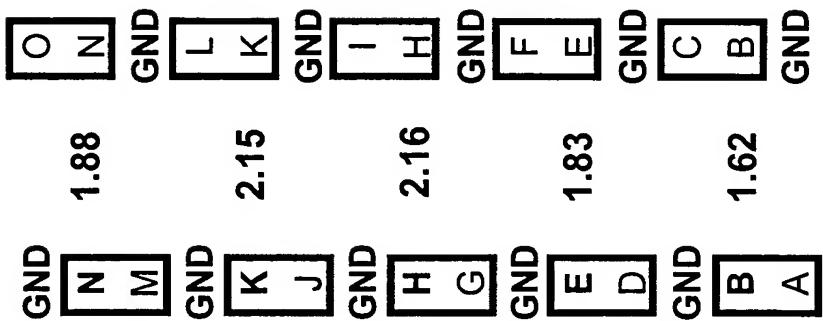


FIG. 45C

# Single-Ended IMLA to Differential IMLA

## Far-End Crosstalk Approximation

100ps (10-90%)

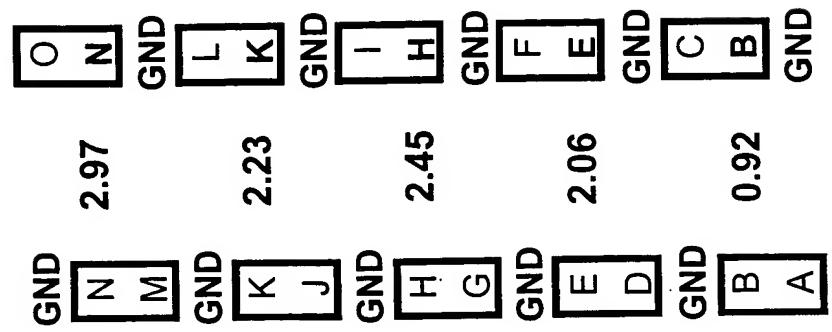
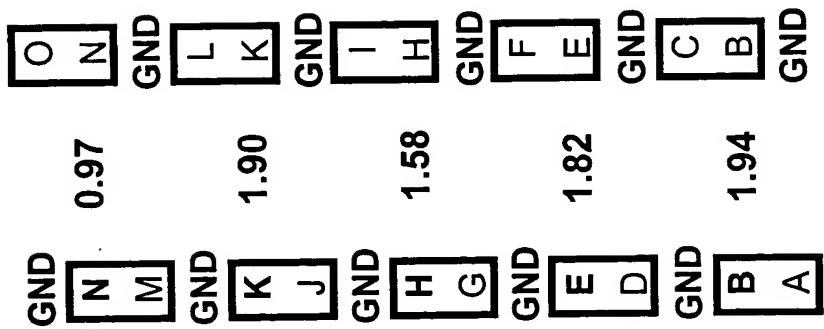


FIG. 45D

Single-Ended IMLA to Differential IMLA  
 Near-End Crosstalk Approximation

150ps (20-80%)

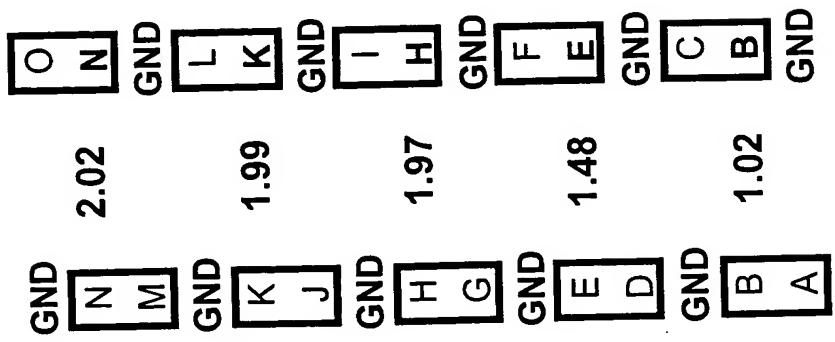
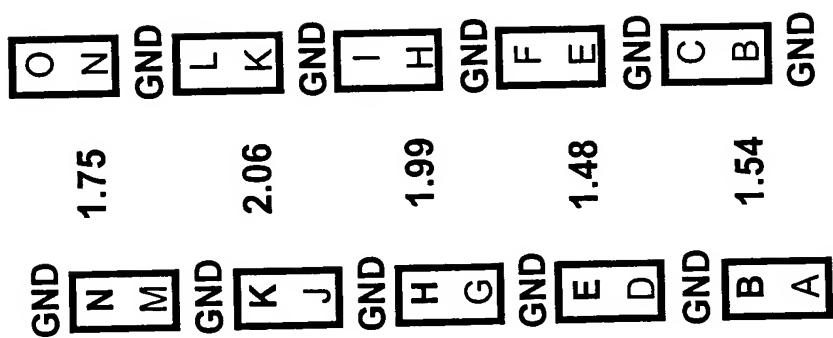


FIG. 45E

# Single-Ended IMLA to Differential IMLA

## Far-End Crosstalk Approximation

150ps (20-80%)

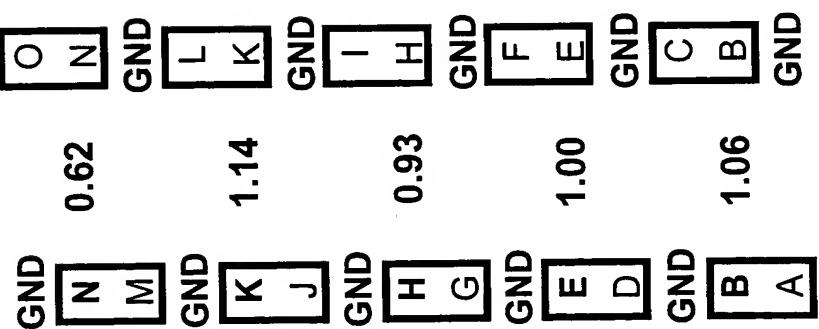


FIG. 45F

# Differential IMLA to Single-Ended IMLA

## Near-End Crosstalk Approximation

40ps (10-90%)

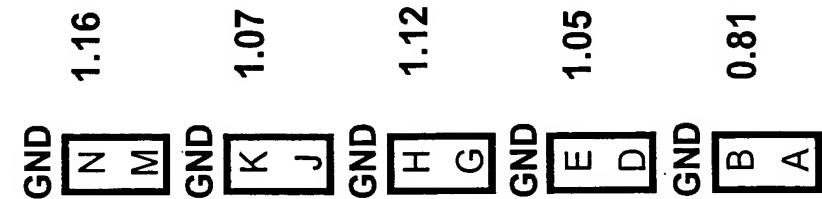
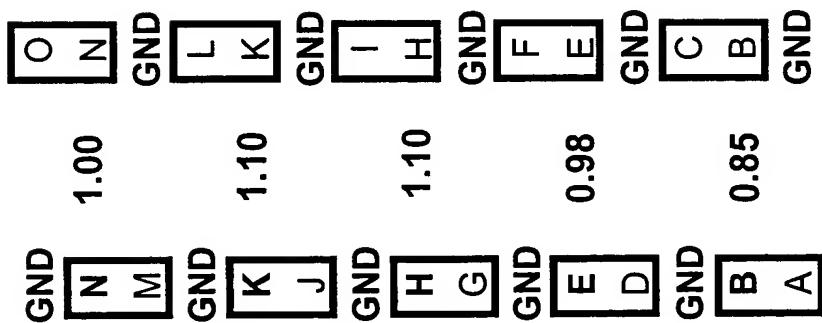
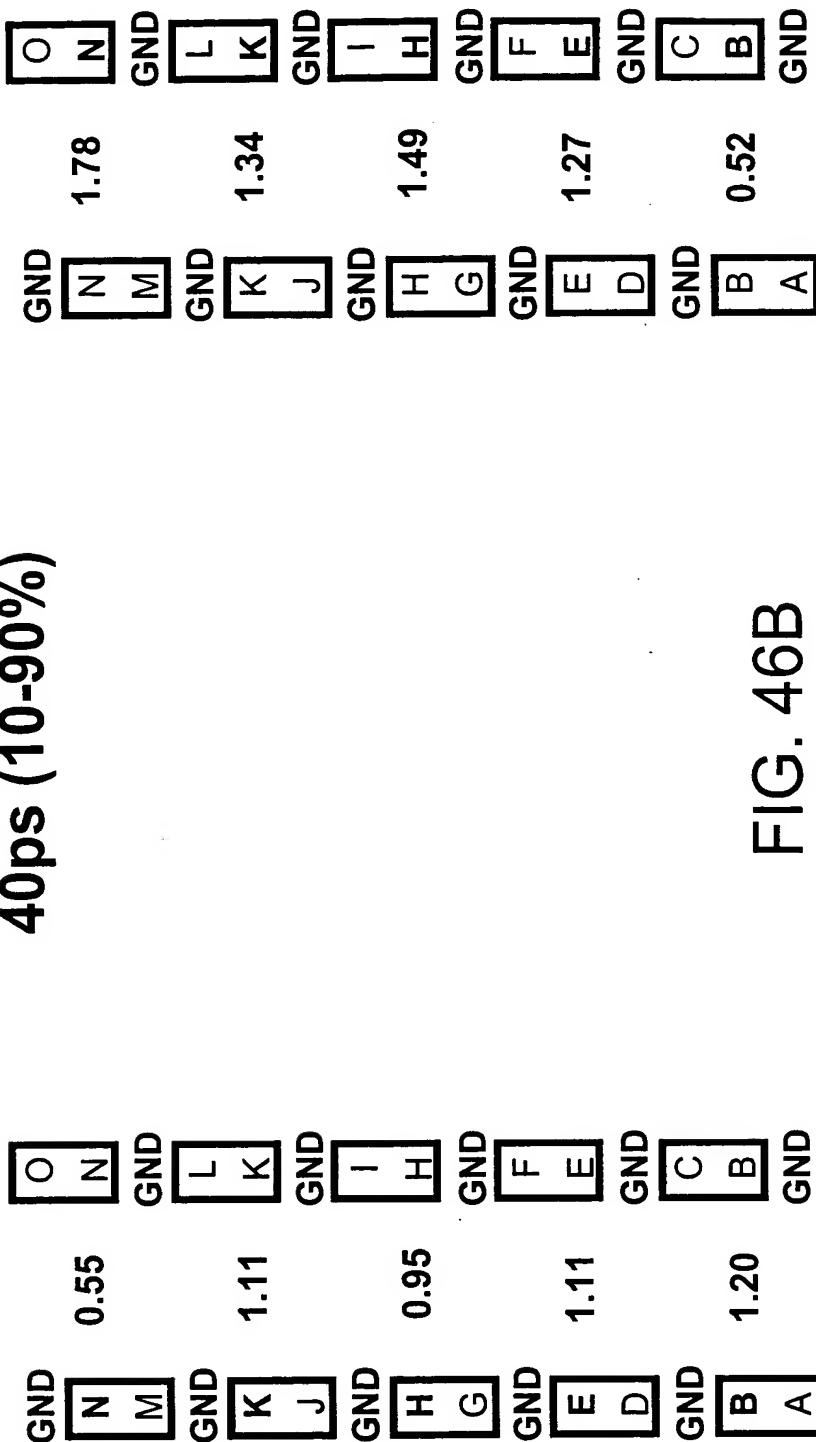


FIG. 46A

**Differential IMLA to Single-Ended IMLA**

**Far-End Crosstalk Approximation**

**40ps (10-90%)**



**FIG. 46B**

**Differential IMLA to Single-Ended IMLA**  
**Near-End Crosstalk Approximation**

100ps (10-90%)

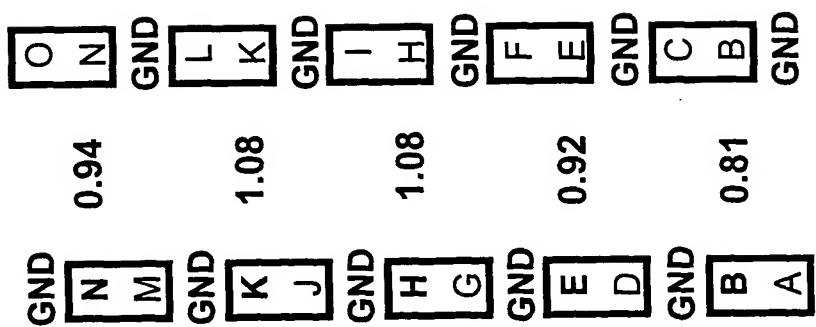


FIG. 46C

# Differential IMLA to Single-Ended IMLA

## Far-End Crosstalk Approximation

100ps (10-90%)

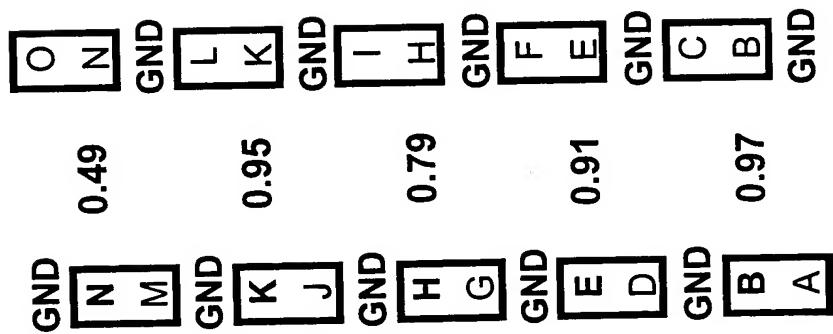


FIG. 46D

## Differential IMLA to Single-Ended IMLA

## Near-End Crosstalk Approximation

150ps (20-80%)

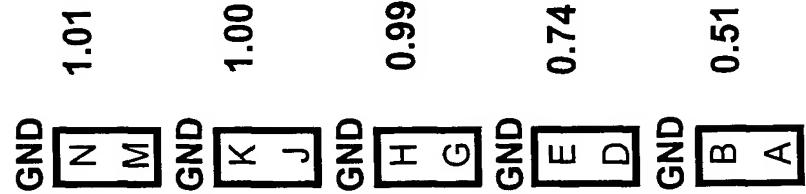
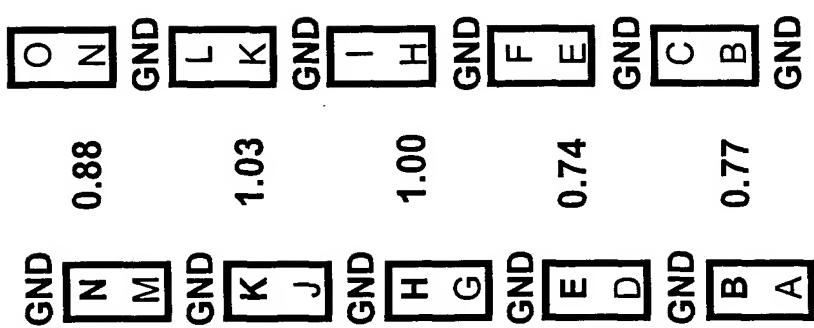
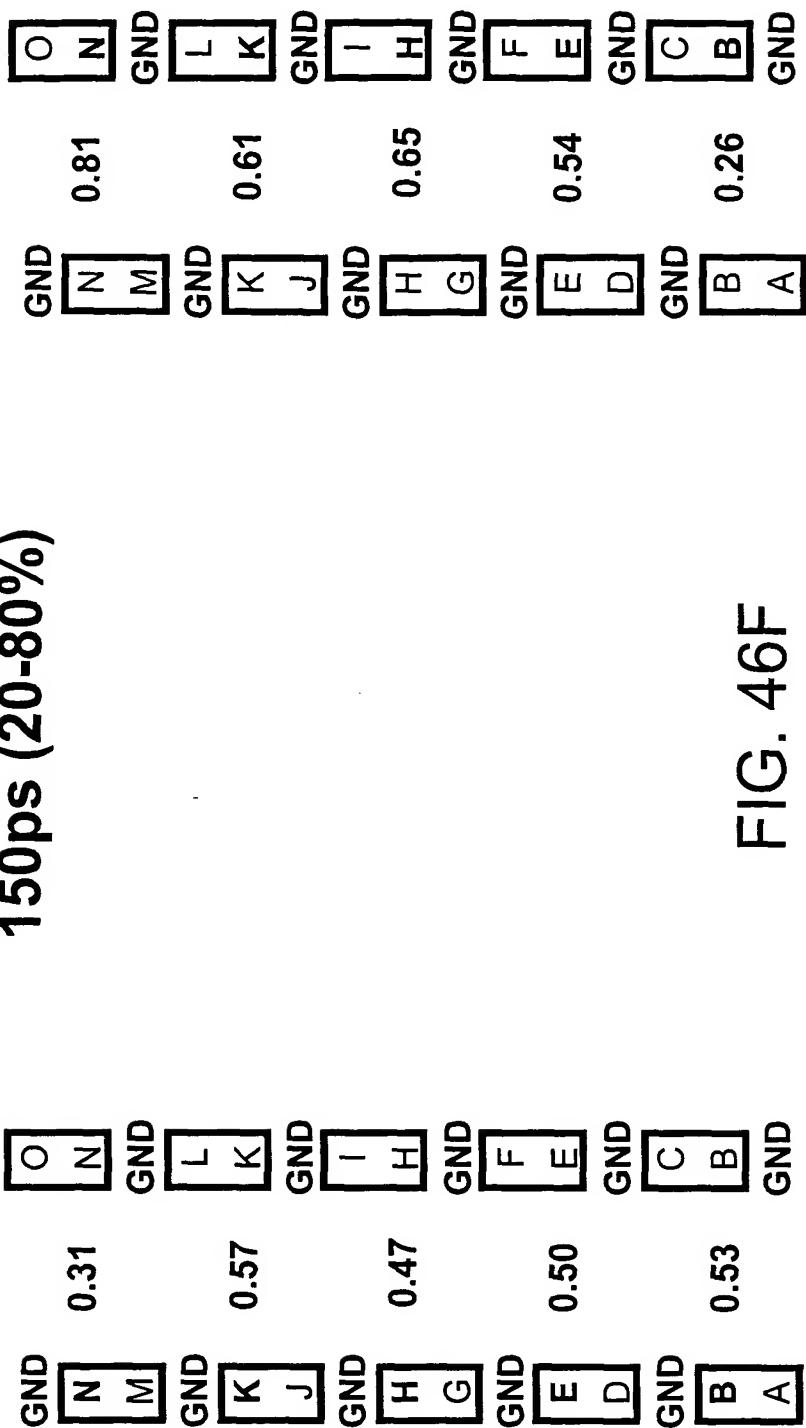


FIG. 46E

**Differential IMLA to Single-Ended IMLA**  
**Far-End Crosstalk Approximation**

**150ps (20-80%)**



**FIG. 46F**